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FINAL REPORT

EISENHOWER CONSORTIUM

CUS PROJECT 31-1876-1457
16-731-CA

VISITOR USE AND PREFERENCE STUDY: OAK CREEK CANYON, ARIZONA

1977

Prepared by:

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Department of Recreation Resources

and

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Fort Collins, Colorado 80523

May, 1979

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This final report summarizes the research conducted for the Oak Creek Canyon pilot study, which used FY77 funding. Research continued in the canyon based on this pilot study and used FY78 funding.

Background

Oak Creek Canyon is the location of many recreation sites within the Coconino National Forest, administered by the Sedona Ranger District, U.S. Forest Service. The canyon extends for 12 miles through the Mogollon Rim in north central Arizona, cross-cutting five vegetative zones from the ponderosa pine forest to the desert of "red rock" country. The main feature in the canyon is Oak Creek, which is a perennial stream. Oak Creek is a very popular recreation area for swimming, fishing, hiking, camping, and picnicking in the summer and year-round sightseeing.

In 1977, the Coconino National Forest contacted the Rocky Mountain Forest and Range Experiment Station about gathering information on user preferences in Oak Creek Canyon. The Forest needed information on the users of Oak Creek Canyon for input into the management plan being developed for the area. A cooperative agreement with Colorado State University (CSU) for conducting the research was contracted (Cooperative Agreement No. 16-731-GR).

The popularity and narrowness of the canyon results in long lines of slow-moving traffic and heavy pedestrian traffic. This creates problems of congestion and visitor safety in the canyon. Managers of the area felt that information on user activities, length of stay, major trip destination, and preferences would aid in developing alternatives to these problems.

Procedures

The research design for the FY77 pilot study in Oak Creek Canyon contains four different questionnaires. The procedures for using each of the questionnaires are outlined below.

Front-End Questionnaire

The front-end questionnaire (Appendix A) was used at roadside interviewing stations to collect visitor use information and names and addresses for the mailback questionnaire. The information obtained on the front-end form includes activities users participated in by zones within the canyon, hours participated in any one activity, length of stay in the canyon, number of previous visits, group composition by age and sex.

The front-end questionnaire was administered at three locations in the canyon. The interviewing stations were selected at each end of the canyon so that users could be interviewed as they exited the canyon; therefore, a user's interview reflected his entire visit in the canyon.

The north-end interviewing station was located near the Oak Creek Canyon Vista turnoff. Two south-end stations were necessary because of the lack of adequate turn-off locations in the southern end of the canyon. The primary south station was at Indian Gardens. An additional south-end interviewing station was located at the Grasshopper Point swimming area. The Grasshopper Point station was necessary to interview people who entered the canyon from the south and would not go as far up the canyon as the Indian Gardens Station. Grasshopper Point is the only public recreation site south of Indian Gardens.

Personal Interview Schedule

The personal interview schedule (Appendix B) was used informally to obtain data to support the information collected with the front-end form. Swimmers, hikers, picnickers, campers, and fishermen were engaged in

conversation by interviewers and led into discussions on the activities they participated in, party size, perception of the water quality in Oak Creek, and views on pet regulations in the canyon. Users were unaware that they were being interviewed; however, if they questioned the interviewer about any of the questions, they were told the purpose of the interview.

The results of the front-end and personal interview schedule were reported in the progress report (Appendix C).

Expectancy Questionnaire

The expectancy questionnaire (Appendix D) was administered on-site to campers, swimmers, and hikers. The questionnaire was used to measure those psychological outcomes that recreationists in Oak Creek Canyon value and expect to find in a recreation experience. The results of this questionnaire are reported in Appendix E.

Mailback Questionnaire

A five-page mailback questionnaire (Appendix F) was sent to those Oak Creek Canyon users who gave their names and addresses at the roadside interviewing stations. This questionnaire asked users their opinions of possible management developments and alternatives in the canyon, psychological outcomes, trip destination, and socio-demographic information.

Questionnaires were sent to 1,129 Oak Creek Canyon users, employing three mailings to increase response rates. The first and second mailing used the form seen in Appendix F. These two mailings resulted (omitting incorrect addresses, N=103) in a response rate of 49 percent (N=501). The third mailing used an abbreviated version of the original questionnaire (Appendix G). The purpose of this shorter form was to increase response from those users who might have thought the original questionnaire was too long. However, the third mailing only increased the response rate 5 percent for a total 55 percent response rate (N=554).

Analyses of the front-end questionnaire between respondents to the mailback questionnaire and nonrespondents revealed no statistically significant differences between the two populations.

The results of the mailback are in Appendices F and G. The remainder of this report discusses these results.

User Characteristics

Respondents to the Oak Creek Canyon 1977 mailback questionnaire represent a wide range of characteristics, with no group of users having differentiating characteristics.

Visitors to Oak Creek Canyon during the summer of 1977 represent a spectrum of ages. One-quarter (25 percent) of the users responding to the questionnaire are between 27 and 35 years old, 21 percent are between 36 and 45 years old, and 20 percent are between 21 and 26 years old. Sixteen percent are over 55 years old, with only 6 percent being 65 years old or older.

The age distribution of mailback respondents is different than those obtained from the front-end questionnaire for three reasons: 1) some of the age categories were different between the two forms, 2) the front-end questionnaire required the interviewer to estimate ages rather than the self-reports required on the mailback questionnaire, and 3) generally, children (under 18 years old) were not sent a questionnaire since their names and addresses were not collected.

Two-thirds (67 percent) of the respondents to the mailback questionnaire were males and a third (32 percent) were females. This overrepresentation by males reflects bias in the name collection during the front-end interview rather than actually representing the proportion of male-female visitors to Oak Creek Canyon. Interviewers were instructed to alternate between the driver and passenger side of cars. However, married females frequently

gave their husband's name. Estimates from the front-end interviews indicated that there were equal numbers of male and female (see Appendix C-9).

Visitors to Oak Creek Canyon come from a wide range of city sizes. One quarter (26 percent) of the visitors reside in towns of 5,000 to 50,000 people, and another quarter (25 percent) reside in suburbs surrounding medium or large size cities. Another quarter of visitors (26 percent) reside in the central areas of medium or large size cities (populations of 100,000 or more). Only 14 percent of the visitors come from villages or rural areas. (See Appendix F-5.)

Thirty-six percent of Oak Creek Canyon respondents are managers or professionals. The next largest occupation description is retired (10 percent), followed by students (9 percent), skilled tradesmen (9 percent) and homemakers (8 percent). No farmers were represented by the mailback questionnaire.

Thirty percent of the respondents travelled to Oak Creek Canyon from residences that were over 600 miles away. Of those who travelled over 600 miles, only 6 percent said that Oak Creek Canyon was the major destination of their trip (Table 1), while 50 percent said that it was not a major destination but stopped on their way to somewhere else.

Seventy-eight percent of the respondents who said that Oak Creek Canyon was the major destination for their trip live within 200 miles of Oak Creek (this distance includes the greater Phoenix area). Seventy-five percent of those who said Oak Creek Canyon was not a major destination for their trip live more than 200 miles from the canyon (Table 1).

Only 18 percent of the respondents were local residents, within 50 miles of the canyon (Appendix F-4), but 50 percent of the local users said that Oak Creek was the major destination for their trip. This high

Table 1. Distribution of Oak Creek Canyon users' distance of home from Oak Creek Canyon by trip destination category for Oak Creek Canyon.[1]

Location of Home in Miles from Oak Creek Canyon	The Major Destination Percent	(N)	A Major Destination Percent	(N)	Not a Major Destination Percent	(N)	Other[2] Percent	(N)
Less than 50	28%	(44)	15%	(13)	8%	(15)	35%	(17)
51 to 100	13	(21)	16	(14)	6	(12)	6	(3)
101 to 200	37	(59)	27	(24)	11	(21)	12	(6)
201 to 400	9	(14)	11	(10)	10	(20)	8	(4)
401 to 600	7	(11)	10	(9)	15	(29)	6	(3)
Over 600	6	(9)	21	(19)	50	(99)	31	(15)
Total	100	(158)	100	(89)	100	(196)	98[3]	(48)

[1]Table does not include respondents to the third mailing (information not included on questionnaire).

[2]Other category included many people who said they were just passing through on their way to another destination. Also people who indicated they had made a spur-of-the-moment decision to visit Oak Creek Canyon.

[3]Columns may not sum to 100 percent due to rounding error.

percentage can be expected since local residents making short trips to Oak Creek could be expected to just go to Oak Creek whereas people on longer trips might be visiting many more places (have more destinations).

Overall, half (49 percent) of the respondents said that Oak Creek Canyon was a major destination, including 37 percent who said it was the major destination. Forty-one percent of all respondents said that it was not a major destination area, and they stopped on their way somewhere else.

Forty-eight percent of respondents indicated that they only made one trip to Oak Creek Canyon between May 1 and September 30 in 1977. Fifty-four percent of the people who only made one trip lived more than 600 miles from the canyon. Eight percent of local residents (within 50 miles) made five or more trips to the canyon, only 3 percent of local residents only made one trip during the summer of 1977.

Management Actions

Managers in Oak Creek Canyon are interested in users' views of several possible developments in the canyon and possible management alternatives to existing problems. The 1977 mailback questionnaire dealt with these concerns and asked users their opinions of selected management actions.

A number of possible developments in the canyon were listed (Table 2) and users were asked to indicate their opinion of the development on a seven-point scale from strongly favor (1) to strongly oppose (7). Table 2 summarizes the favor and oppose responses to the developments including no opinion or neutral views of the development. All possible developments in the canyon were generally favored, except the suggestion that the present hiking trails in the canyon be closed. This action was opposed by 79 percent of the respondents. The development that was most strongly favored was the development of facilities for dispersing information concerning

Table 2. 1977 Oak Creek Canyon user opinions concerning possible developments in the canyon by the Forest Service.[1] [2]

Possible Development	Favor Percent	(N)	Oppose Percent	(N)	No Opinion or Neutral Percent	(N)
Build more hiking trails in the canyon	65%	(378)	13%	(73)	23%	(139)
Keep campgrounds open longer than presently open	58	(345)	10	(59)	31	(185)
Provide more information on facilities and activities in the canyon	72	(432)	8	(45)	20	(120)
Develop a tents only campground in addition to existing campgrounds	59	(350)	13	(78)	28	(164)
Develop a backpacker campground in addition to existing campgrounds	58	(349)	12	(65)	31	(184)
Develop a bicyclist campground in addition to existing campgrounds	42	(250)	21	(124)	37	(224)
Develop horseback riding trails in the canyon	49	(293)	26	(152)	25	(150)
Expand the access and parking facilities at Grasshopper Point swimming area	55	(323)	21	(126)	24	(144)
Close the present hiking trails in the canyon	4	(21)	79	(463)	17	(100)

[1] Percentage totals include responses from the third mailing questionnaire.

[2] Rows may not equal 100 percent due to rounding error.

activities and facilities available in the canyon (this was being done at Indian Gardens during the summer of 1978). Users indicated that they desired a tents only campground, however there was not strong support for bicyclist or backpacker campgrounds. Users favored campgrounds staying open for a longer season, more trails and better access at the Grasshopper Point swimming area.

Three specific problem areas were identified by the managers of Oak Creek Canyon. These program areas were 1) traffic, 2) water quality in Oak Creek, and 3) land acquisition by the Forest Service. Users were asked to indicate how much they favored or opposed alternative solutions to these problems.

Traffic congestion is a major problem in the canyon, especially during summer months. Three restrictive actions were suggested as solutions: allowing day use only, making the canyon a scenic drive, and installing a bus system to transport people into the canyon. All three of these actions were opposed by two-thirds (66 percent) of the respondents, and the bus system was opposed by 70 percent of respondents (Table 3). Two solutions to traffic problems suggested expanding the present parking and camping facilities, and both of these actions were favored by a majority of respondents (at least 58 percent). Analyses of these alternatives by different user groups, distance travelled from home, and major destination indicated no differences in responses with respect to these traffic alternatives. Again, these data indicate that users favor developments and oppose new limitations or restrictions.

Because of the volume of use the canyon receives, area managers are concerned about maintaining the quality of the water in Oak Creek. Five alternative solutions to this problem were proposed on the mailback questionnaire (Table 4). Severe restrictions on activities, allow fishing only and reduce the number of campgrounds were opposed by 56 percent and 63 percent

Table 3. 1977 Oak Creek Canyon user opinions concerning possible management actions for solving traffic problems in the canyon.[1] [2]

Possible Action - Traffic Problem	Favor Percent	(N)	Oppose Percent	(N)	No Opinion or Neutral Percent	(N)
Expand present parking facilities in the canyon	67%	(359)	26%	(101)	8%	(43)
Move camping outside of the canyon and allow day use only	22	(117)	66	(352)	13	(69)
Make the canyon a scenic drive with only limited parking in the canyon	27	(141)	66	(351)	8	(43)
Maintain parking lots outside the canyon with access to the canyon being by bus. Bus fare would not exceed $2.00 per person.	15	(124)	70	(370)	8	(44)
Expand camping facilities in the campgrounds	58	(307)	28	(147)	15	(77)

[1]Percentages do not include respondents to the third mailing (information not included on questionnaire).

[2]Row percentages might not equal 100 percent due to rounding error.

Table 4. 1977 Oak Creek Canyon user opinions concerning possible management actions for solving problems of maintaining water quality in Oak Creek.[1] [2]

Possible Action - Water Quality	Favor Percent	(N)	Oppose Percent	(N)	No Opinion or Neutral Percent	(N)
Limit swimming to Grasshopper Point and Slide Rock only	51%	(287)	30%	(168)	29%	(109)
Allow only fishing (no swimming) in the creek	29	(164)	56	(325)	15	(85)
Reduce the number of campgrounds	19	(102)	63	(348)	19	(103)
Do not allow swimming in the creek when water quality is low enough to create a health hazard	88	(513)	7	(31)	5	(30)
Strictly enforce the no pets regulation at the swimming areas	83	(470)	12	(67)	7	(38)

[1]Percentages include respondents to the third mailing.

[2]Row percentages might not equal 100 due to rounding error.

of the respondents respectively. Milder forms of restrictions were favored as a means of maintaining water quality. Limiting the areas open to swimming (51 percent favored), restricting swimming when water quality is low enough to create a health hazard (88 percent favored), and prohibiting pets from swimming areas (72 percent strongly favored this alternative, a total of 83 percent favored it) were acceptable means of maintaining Oak Creek water quality.

Forest Service land in Oak Creek Canyon is intermingled with numerous privately owned tracts, sometimes resulting in management problems (e.g., the parking lot for the Slide Rock area is privately owned, making limitation of use at Slide Rock difficult). For management reasons, the Forest Service would like to purchase more private land in the canyon. Respondents to the 1977 mailback questionnaire generally favor the Forest Service acquiring more land in the canyon, except through the process of condemnation which most respondents (56 percent) oppose (Table 5). Sixty-three (63) percent favor the Forest Service purchasing as much land as possible. Fifty-one (51) percent of the respondents favor the Forest Service buying only that land which is necessary for Forest Service operations and 64 percent favor buying private land as it comes on the market. The 1978 mailback questionnaire asked Oak Creek Canyon users to choose which method of land acquisition they would prefer the Forest Service to use. (The report on the 1978 questionnaire can be expected in December, 1979).

Mayhew Lodge is a former hunting lodge in the canyon that has been purchased by the Forest Service. The lodge has become a problem for the Forest Service because of the expense of maintaining it. Eight percent of the respondents did not know what Mayhew Lodge was. Of the 20 percent who know what the lodge is, 54 percent are local residents (less than 50 miles for Oak Creek) and 93 percent live within 200 miles of the canyon.

Table 5. 1977 Oak Creek Canyon user opinions concerning possible management actions concerning the Forest Service purchasing land in Oak Creek Canyon.[1] [2]

Possible Action - Land Acquisition	Favor Percent	(N)	Oppose Percent	(N)	No Opinion or Neutral Percent	(N)
Purchase as much private land in the canyon as possible	63%	(320)	21%	(100)	16%	(82)
Purchase only that land which is necessary to maintain Forest Service facilities and operations	51%	(252)	28	(134)	21	(100)
Purchase private lands as it comes on the market	84	(372)	11	(59)	14	(67)
Acquire land through condemnation	23	(111)	56	(265)	22	(104)

[1]Percentages do not include third mailing respondents (information not included on questionnaire).

[2]Row percentages may not equal 100 percent due to nonrespondents and rounding error.

Users who know what Mayhew Lodge is were asked to respond to alternative actions concerning the future of the lodge. Sixty-four percent of those who knew what Mayhew Lodge is favored the Forest Service restoring and operating the lodge for public use (Table 6). Sixteen percent felt that the lodge should be restored by the Forest Service and operated by a private concessionaire. Having the lodge torn down or allowed to wear down was favored by only 4 percent and 8 percent respectively. Table 6 compares the percentages of all respondents to the mailback questionnaire.

Oak Creek Canyon users were asked about their perception of the number of law enforcement officials in the canyon. Forty-eight percent of the respondents indicated that there should be an increase in law enforcement officials, 27 percent felt the number should remain the same, and only 3 percent felt the number of officials should be decreased. The remainder of the respondents had no opinion concerning law enforcement officials.

Only 15 percent of respondents answered the open-ended question asking users if there are any management actions they would like to see implemented. The largest group of suggestions (20 percent) concerned the removal and control of litter in the canyon, especially at the swimming areas. Other suggestions included cleaning up the campgrounds, controlling campfires, and providing more safety features (first aid stations, improved trails, etc.).

Table 6. Responses to alternative actions concerning Mayhew Lodge.

	Percent of those who knew what Mayhew Lodge is	Percent of all respondents
Mayhew Lodge should be:		
Torn down	4%	1%
Allowed to wear down	8	2
Restored and operated at Forest Service expense for public use	64	16
Restored by the Forest Service, operated by a private concessionaire	16	4
Other[1]	4%	2%

[1]Other categories included returning to private ownership, do nothing with it, and turn it into a museum.

Desired Recreational Opportunities

People engage in recreational activities for different reasons or to achieve different outcomes. Understanding these different outcomes enables managers to provide the recreational opportunities that people desire and demand.

The ninth (IX) section of the 1977 mailback questionnaire (Appendix F) lists 57 items that might add to or detract from a respondent's recreation experience. These 57 items are outcomes (or satisfactions) that recreationists might desire from engaging in a recreation activity. Respondents were asked to select their primary activity while visiting Oak Creek Canyon. Keeping this activity in mind, users rated the 57 items (on a nine point scale) as to how much that outcome would add to (1) or detract from (9) their satisfaction, if they were to return to Oak Creek Canyon the following summer and engage in that activity. Those items that add the most to a user's satisfaction define the user's desired recreation experience.

Because of the large number of items, data reduction methods were employed. Generally, the "ICLUST" clustering procedure is used in data reduction.[1] Outcome items were analyzed by pre-clustering them into established scales.[2] These scales and the items comprising the scales used in

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[1]ICLUST involves determining "common themes" among items, then placing items into clusters. Any item with a cluster has more in common with the other items in that cluster than it does with items in other clusters. Clustering items reduces the number of variables that must be analyzed.

[2]These scales have been developed at the Rocky Mountain Forest and Range Experiment Station RM(1901) and Colorado State University, Fort Collins, Colorado, based on several years of research.

analysis are shown in Figure 1. (For the remainder of the report, the word outcome refers to these scales and not the individual items.)

To better understand the recreation experiences in Oak Creek Canyon, outcome scales were analyzed by different primary recreation activities. Based on past research, it was assumed that users who participated in different activities would value different outcomes. This is partially supported by the 1977 Oak Creek Canyon data.

The top ten outcomes (those that add the most to satisfaction) for all users and each activity are illustrated in Table 7. The top ten items for each activity are rather similar. The scales that are included in all activities top ten items are Scenery, Escape Personal-Social Pressure, Tranquility, General Nature Experience, Seek Open Space, Family Togetherness, Tension Release, Exploration, Exercise, Escape Physical Pressure, Physical Rest, Learn About Nature, and Being with People. Scenery (or viewing the scenery) is the most important outcome for all users. Oak Creek Canyon is known regionally and nationally for its scenic qualities so this result is not surprising.

Analysis of variance indicates that there are some statistically significant differences between activities on responses to outcomes. All but one of these statistically significant differences disappear when auto drivers are removed from the sample. Auto drivers have consistently higher means (centering around the neutral part of the scale) than participants in other activities. Auto drivers, generally, spend less time in the canyon and are on their way to other places. Therefore, they do not see the same things in Oak Creek Canyon that other users do. Scenery is very important to auto drivers and much higher rated (a 1.2 scale difference, Table 8) than the outcome that adds the second most to satis-

Figure 1.

Scales formed from the outcome items on the 1977 Oak Creek Canyon Mailback Questionnaire. (*) one of the top ten outcomes for at least one activity.

*Scenery

Viewing the scenery
Viewing the scenic beauty

*Escape Personal-Social Pressure

Having a change from your everyday life
Releasing or reducing some built-up tensions

*General Nature Experience

Being close to nature
Enjoying the sounds and smells of nature
Gaining an appreciation of nature

*Family Togetherness

Doing something with your family
Being with your spouse or another member of your family

*Exploration

Exploring the area
Experiencing new and different things

*Exercise

Trying to keep physically fit
Getting exercise

*Learn about Nature

Learning more about nature
Developing your knowledge of things in the canyon

*Physical Rest

Resting physically

Seeking Stimulation

Experiencing the excitement
Experiencing the fast pace

Independence/Autonomy

Being on your own
Feeling free from society's restrictions

Teaching/Sharing Skills

Teaching your outdoor skills to others
Sharing your knowledge with others

*Being with People

Doing things with your companions
Being with other members of your group
Being with people having similar values

Meeting-Observing New People

Meeting other people in the area
Observing other people in the area

Introspection

Thinking about your personal values
Thinking about your future

Figure 1. Continued.

Creativity

Doing something creative, such as sketching, painting, photography, etc.

*Tranquility

Experiencing tranquility
Experiencing the peace and calm

*Seek Open Space

Experiencing the open space

*Escape Physical Pressure

Getting away from other people
Being away from the noise back home
Being away from crowds of other people

Table 7. Ranking of the top ten outcome scales (the ten that add most to user satisfaction) by activity for 1977 Oak Creek Canyon users.

Outcome Scales	All Users	ACTIVITIES[1]						
		Swimming	Camping	Fishing	Picnicking	Sight-Seeing	Auto Driving	Hiking
Scenery	1	1	1	1	1	1	1	1
Escape Personal-Social Pressure	2	2	4	6	3	4	5	7
Tranquility	3	7	3	4	8	3	4	2
General Nature Experience	4	5	5	2	7	2	3	3
Seek Open Space	5	4	6	3	5	6	2	5
Family Togetherness	6	8	2	5	2	5	8	
Tension Release	7	3	7	7	6	7	6	8
Exploration	8	9				9	7	6
Escape Physical Pressure	9			9	10		10	10
Exercise	10	6	9	8	9			4
Physical Rest		10	8		4	10		
Learn About Nature				10		8	9	9
Being With People			10					
N	114	55	120	32	23	101	14	66

[1]Activity categories "sunbathing" and "other" are excluded because of the small sample size (N less than 10).

faction (Seek Open Space).

The statistically signiciant difference that does not appear when auto drivers are removed from the sample is between campers and picnickers and other users on the Family Togetherness outcome scale. Campers and picnickers indicated that Family Togetherness was second most desired outcome. Other activities rate Family Togetherness only fifth or lower and hikers do not even rate it in the top ten.

There are some general differences in the preferences of users engaged in different activities. Swimmers and hikers both rate Exercise higher than any other activities. This is consistent with the nature of these activities. Sightseers also value Tranquility and Nature. Fisherment and hikers value tranquility and nature very highly. These activities usually take place in peaceful settings and are resource dependent.

Within activities there are very small differences in means between the first and tenth item (Table 8). Most of the mean differences (between first and tenth) are under 1.2, which for practical purposes on a 9-point scale is not large enough to say there are managerially relevant differences, but this must be a judgment decision by the area manager. The exception, once again, is auto driving. There is a 1.2 mean difference between the first and second outcome scale and only a .3 difference between the second and tenth.

Table 8. Means[a/] and standard deviations for outcome scales by activity from 1977 Oak Creek Canyon mailback questionnaires.

Outcome Scales	All Users		ACTIVITIES													
			Swimming		Camping		Fishing		Picnicking		Sight-Seeing		Auto Driving		Hiking	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1. Scenery	1.4	1.7	1.4	.68	1.3	.54	1.4	.53	1.6	1.2	1.4	.62	1.3	.54	1.2	.32
2. Escape Personal-Social Pressure	1.9	1.1	1.9	1.1	1.9	1.0	1.9	1.3	1.7	.7	1.9	1.0	2.5	1.3	2.1	1.2
3. Tranquility	1.9	1.2	2.3	1.4	1.8	1.0	1.9	1.2	2.2	1.1	1.8	1.1	2.8	1.3	1.8	1.3
4. General Nature Experience	2.0	1.0	2.3	1.1	2.0	.9	1.9	1.0	2.0	.9	1.8	1.0	2.5	1.1	1.9	1.0
5. Seek Open Space	2.0	1.3	2.2	1.3	2.0	1.1	1.9	1.2	1.9	1.0	2.0	1.5	2.4	1.2	2.0	1.4
6. Family Togetherness	2.1	1.4	2.4	1.5	1.7	1.0	1.9	1.3	1.5	.6	2.0	1.2	3.1	1.5	2.6	1.6
7. Tension Release	2.2	1.1	2.2	1.1	2.2	1.0	2.1	1.1	2.0	.9	2.3	1.0	2.9	1.1	2.2	1.2
8. Exercise	2.9	1.3	2.7	1.3	2.9	1.3	2.4	1.3	3.1	1.2	3.2	1.5	3.6	1.5	2.2	1.3
9. Exploration	2.5	1.2	2.6	1.0	2.6	1.1	2.9	1.3	2.7	.9	2.4	1.3	3.1	1.0	2.1	1.1
10. Physical Rest	2.5	1.5	2.6	1.4	2.3	1.3	2.9	1.6	1.9	1.0	2.5	1.4	3.5	1.9	3.0	1.8

[a/] Means are based on a 9-point scale from most strongly adds to (1) to most strongly detracts from (9).

Summary and Conclusions

The purpose of the 1977 pilot study in Oak Creek Canyon was to provide information for the land management plan for the Sedona-Oak Creek Unit of the Sedona Ranger District and to provide a data base for the more comprehensive 1978 Oak Creek Canyon study. The pilot study focused on measuring recreation use in the canyon, quantifying the types of satisfying experiences that are desired and expected by the users, and user perceptions of the water quality in Oak Creek.

The 1977 progress report (Appendix C of this report) summarized the use estimates in the canyon (1.3 million people passing through the canyon over a six month period) and user perceptions of the water quality (rated very high by users) of Oak Creek. The mailback questionnaire discussed in this report obtained user views on possible management developments and actions, users desired recreation experiences, and general demographic information on users.

Oak Creek Canyon recreationists constitute a wide range of ages and occupations. However, 36 percent of the users were managers or professionals. A majority of Oak Creek Canyon recreationists are city dwellers, residing in the suburbs or centers of large metropolitan areas. A large proportion of these city dwellers are from the greater Phoenix area. Most recreationists in Oak Creek Canyon are state residents (53 percent), although the canyon does have regional and national attraction (47 percent of the users were out-of-state).

Oak Creek Canyon is not the major trip destination for most of the users, it is most often part of a trip to somewhere else. However, the closer a user's residence to the canyon the more likely that the canyon is the major trip destination. Information dispersal on events in the canyon, such as forest closures, regulations against open fires or road construction would be most beneficial on a local or state level, since Oak Creek Canyon is more likely to be the major trip destination for state residents.

Oak Creek Canyon recreationists generally support more developments (campground, trails, etc.) in the canyon and oppose reducing present facilities. There is not strong support for the development of bicycle only campgrounds or horse trails in the canyon. The opportunity for these activities is not currently being provided in the canyon and there does not appear to be a demand for them.

Users responded to questions on three management problems areas (1) traffic congestion, (2) water quality maintenance and (3) land acquisition in the canyon. Recreationists support the development of more parking and camping to alleviate the traffic congestion. Also, users oppose any actions that might curtail their activities in the canyon (removal of campgrounds, bus system, etc.). This is not surprising, since people rarely voluntarily accept less.

Oak Creek Canyon recreationists are in favor of certain restrictive actions concerning the maintenance of the water quality in Oak Creek. This is in agreement with the perceived high water quality of the water in the canyon. Users strongly favor limiting the areas where people can swim, enforcing the no pets regulation at swimming areas, and not allowing swimming in the creek when the water quality is low enough to create a health hazard. Users oppose more restrictive actions such as prohibiting swimming in the canyon and reducing the number of campgrounds. However,

there is support for some limitations on swimming if users know that the reason for such action is to maintain the water quality.

Recreationists in Oak Creek Canyon favor the Forest Service acquiring more land in the canyon but they have preferences as to how this is accomplished. Purchasing private land as it comes on the market is favored by the most users. Other means, such as purchasing as much land as possible, are also acceptable. The only method of land acquisition that is opposed is acquiring land by condemnation.

The question of what to do with Mayhew Lodge is only partially resolved by responses to the mailback questionnaire. Eighty percent of the respondents do not know what the lodge is, and therefore are unaffected by any decision made about its future. Of those who know about the lodge, most are local residents. If the lodge is torn down it will not affect the recreation experiences of the majority of visitors, however it could produce adverse public relations between the Forest Service and local residents. Most users who know about the lodge favor restoring it at Forest Service expense. This might be a viable alternative, depending on the importance placed on relationships with local residents.

Recreationists in Oak Creek Canyon desire specific types of recreation experiences. Regardless of activity, the number one reason for recreating in Oak Creek Canyon is for the scenic beauty. The maintenance of the high quality natural beauty in Oak Creek Canyon should be a major recreation management objective. All developments or actions in the canyon should be considered with this valued resource in mind.

It is important to provide the different types of desired recreation experiences that Oak Creek Canyon users want. Outside of selecting scenic beauty as the most important component of a satisfying recreation experience, users engaged in different activities have some varying preferences.

Auto drivers in Oak Creek Canyon rate all potential outcomes neutrally. Therefore, management should concentrate on providing satisfying experiences for on-site users since those just passing through are relatively unaffected by management in the canyon.

Campers and picnickers value family togetherness and being with people. Management should be sensitive to this by providing sites adequate for the average size family, informing other users of the presence of children, etc. Hikers and fisherman value tranquility and open spaces and do not value being with other people. Opportunities for tranquility, etc. should be provided for these users, such as fishing areas away from swimming areas and campgrounds, trails that are long enough for hikers to get away from the crowded areas of the canyon.

Swimmers engage in swimming in Oak Creek Canyon for escape and tension release. Since swimming is so resource dependent, major emphasis should be placed on maintaining the water quality.

Oak Creek Canyon provides unique recreation opportunities in Arizona. Visitors are primarily from urban areas who are attracted to the area by the magnificant scenery and the perennial water. Maintenance of the scenic beauty and water quality should be given top priority. The scenery-naturalness of Oak Creek Canyon that is desired by recreationists should also be used to temper the demands for more facilities if these developments would impair the scenic quality. Recreationists engaged in different activities desire different types of experiences and management should be responsive to these differences.

The 1978 final report on Oak Creek Canyon will provide additional data on user preferences. This report will be completed by December, 1979.

APPENDIX A

C1 1 Interviewer_____ 75-80 IDENT_____

2 Station N(1) S(2) G(3)
3-5 Date_____
6 Time of Week: Weekday (1) Weekend (2) Holiday (3)

7 Trip Purpose: Rec (1) Non-Rec (2) To-From Rec (3)

8 Commuter (1) Canyon Resident (2)

9-11 Total Time Spent in Area _____ hrs.

Time Spent in Zones (Hrs.)?

A	B	C	D	E	F
12-14	15-17	18-20	21-23	24-26	27-29

C2	Activity		Zone				C2	Activity		Zone			
(1)	Swimming	1-4					(10)	Motorcycling	37-40				
(2)	Sunbathing	5-8					(11)	Bicycling	41-44				
(3)	Camping Near Auto	9-12					(12)	Gathering Forest Products	45-48				
(4)	Camping Away From Auto	13-16					(13)	Hiking/Walking	49-52				
(5)	Fishing	17-20					(14)	Technical Mt. Climbing	53-56				
(6)	Picnicking	21-24					(15)	Horseback Riding	57-60				
(7)	Auto Driving	25-28					(16)	Nature Study	61-64				
(8)	Sightseeing	29-32					(17)	Other (list)	65-68				
(9)	Tubing	33-36											

73 (2)
75-80 IDENT

C1 30-31 Which of the above activities was the most important for you coming to this area (above #)? _____

32-33 How many previous visits to the area have you made in the last 12-14 months? #_____

34 Is Oak Creek Canyon a major trip destination? ___ Yes (1) ___ No (2)

35 Group Composition: ___ Family (1) ___ Family & Friends (3) ___ Alone (5) ___ Friends (2) ___ Organized Group (4)

Address of Permanent Resident:

C3 2-29 Name_____ 73(3) 75-80 IDENT
2-35 Street Address _____ 73(4) 75-80 IDENT
2-35 City, State, Zip _____ 73(5) 75-80 IDENT

C1 36 Type of Vehicle: Car (1) Truck (2) Van (3) Camper (4) Motor Home (5)
37 Utility Trailer (1) Camper Trailer (2)

38-39 Total # of People _____

-15		16-20		21-45		45+		# Cars Passed
M	F	M	F	M	F	M	F	

40-41 Time of Day _____

73 (1)

75-80 IDENT

APPENDIX B

PERSONAL INTERVIEW

Major Activities Pursued: _____
(circle the major activity)

Years Engaged in the Major Activity: _____

Length of Stay (Hours & Days) So Far _____ Additional Planned _____

Travel Route _____

_____

Two High Points of trip so far (Most satisfying) _____

_____

_____

Low Points of trip (Problems - Dissatisfactions) _____

_____

_____

Reasons for visit (type of satisfaction expected and valued; PROBE for specifics)

_____

_____

_____

Specific features of physical setting expected and valued (PROBE for specifics)

_____

_____

_____

_____

If have used the water, swimming--fishing, views of water quality

_____

_____

_____

_____

APPENDIX C-1

Progress Report

Visitor Use and Preference Study:

Oak Creek Canyon, Arizona

Agreement #16-731-GR

by

Richard Shikiar

and

Deborah J. Allen

Progress Report
Visitor Use and Preference Study:
Oak Creek Canyon, Arizona

I. BACKGROUND

Oak Creek Canyon is one of the heaviest used water-oriented Forest Service recreation areas in the Southwest. The Coconino National Forest is in the preliminary stages of developing a land management plan for the Sedona-Oak Creek Unit of the Sedona Ranger District. In conjunction with this plan, the Coconino National Forest requested the help of RM-1901 in getting needed data on recreational use and demand, as well as recreationists' perceptions of water quality. The present study was in response to this request.

The research undertaken during the Summer of 1977 constituted a pilot study for a more representative research endeavor the following year. While a pilot study can yield data which is useful for managers, the primary purpose of a pilot study is to test the feasibility and practicality of procedures and materials that are planned for the full scale study. In the present case, the research was constituted of the four following data collection methods:

1. Roadside Interview Schedule Trained interviewers used a structured interview format to question motorists at roadside stations (see Appendix A). Three stations were used in Oak Creek Canyon: just north of Oak Creek Canyon Vista for northbound traffic on route 89A; Indian Gardens for southbound traffic on 89A; and Grasshopper Point parking lot. This last station, which is south of Indian Gardens, was necessary since Indian Gardens is the southernmost point at which a car can be safely pulled off the road in order to conduct a roadside interview. Thus, interviews at Grasshopper Point allowed us to sample users who might enter the canyon from the south (i.e., Sedona) and never

venture as far north as Indian Gardens. Grasshopper Point is the only major area south of Indian Gardens. Each interview takes two to ten minutes. These interviews constitute the primary source for determining use data. In addition, these interviews allowed us to compile a mailing list for the mailback questionnaire. The results of the Roadside Interviews for summer, 1977, will be discussed in section II.

2. Mailback Questionnaire A mailback questionnaire (see Appendix B) is being used to obtain information about (1) the types of satisfaction that different users desire and expect during their visit to Oak Creek Canyon, and (2) the user's perception of selected possible management actions. At this juncture, we are several months behind schedule on this phase of the research. The study plan called for this questionnaire to be mailed out by November. Our present schedule calls for these questionnaires to be mailed out by the first week in February. Hopefully, we will be able to recoup some of the lost time by doing keypunching and data analysis in less time than was originally budgeted for these tasks. Results of the mailback questionnaire will be discussed in the final report.

3. On-Site Personal Interview Schedule Personal interviews were conducted of users engaged in various recreational activities (see Appendix C). At management request, these interviews focused on obtaining visitor opinions concerning regulations involving elimination of pets from the swimming areas and having camping and fires in established campgrounds only. Respondents were also asked their views on water quality, reasons for their visit, and high and low points of their trip to Oak Creek. Respondents were generally approached with a brief introduction by the interviewer and informed that user preference data were being collected. However, some canyon users interviewed were not aware that data were being collected, and responses were

recorded after informal conversations. Finally, resident campground hosts aided in data collection in the campground areas. Not all respondents were asked all questions on the interview form. Results of these interviews are reported in section II.

4. Expectancy Questionnaire Users engaged in three activities, hiking, swimming, and camping were asked to fill out the expectancy questionnaire (see Appendix D). This questionnaire allows us to relate users' expectations concerning desired experiences with the satisfaction they derive from engaging in the given activity. This information is useful for understanding the motivations of different types of recreationists. Results of this segment of the research will be discussed in the final report.

While these four procedures are still planned for the full scale study (assuming funding of such a study), our experiences with these procedures suggest several changes. These will be discussed in section III, as well as in the sections reporting the results from each of the procedures.

II. RESULTS

A. Roadside Interviews

1. How Many Interviews?

In all, 1707 roadside interviews were conducted between June 9 and September 5, 1977.

2. Where and When Did the Interviews Take Place?

There were 777 interviews conducted at the North Station, 844 at the South Station, 46 interviews at Grasshopper Point, 55 interviews at Slide Rock Swimming Area, and 19 interviews at campgrounds. It should be noted that 36 of these interviews were conducted at the campgrounds and at Slide Rock during the period from June 28,

1977 to July 7, 1977 in which fire stops were conducted by Forest Service personnel due to the extreme fire danger at the time. These 36 interviews were not roadside interviews, but instead were conducted at recreation sites.

Of the 1697 interviews for which the data was recorded, 1033 were conducted during weekdays, 633 were conducted on weekends, and 31 were conducted on holidays (Independence Day and Labor Day). Interviews were conducted on 35 separate days spread throughout the 3 month period. Discounting the interviews in which time of day was not recorded, 20% of the interviews were conducted between 7:00 a.m. and 10:00 a.m.; 31% between 10:00 a.m. and noon; 20% between noon and 2:00 p.m.; 18% between 2:00 p.m. and 4:00 p.m.; and 14% between 4:00 p.m. and 6:00 p.m.

3. Was the Trip for Recreation?

Seventy-two percent (1208) of the respondents cited recreation as the reason for their trip, while another 3% said they were travelling to or from another recreational area. Of the 447 vehicles stopped that were not in the canyon for recreation, 326 (19% of all interviews) were commuters while 121 (7%) were canyon residents. Commuters and residents were not asked any additional information. The rest of the results will deal only with responses of the recreationists.

4. From Where Did the Recreationists Come?

Addresses were obtained from 1129 of the recreation parties. Of this amount, over half (53%) were Arizona residents, most of the residents coming from the Phoenix metropolitan area. Non-residents comprised 47% of the recreation parties with addresses.

The largest non-resident group came from California (17%) with the next largest group of non-residents coming from Texas (3%). The remaining 27% came from a total of the other states (excluding Hawaii, Rhode Island, Vermont, and Wyoming) and other countries. While Oak Creek Canyon has great regional interest, it does attract visitors from all over the country. See Appendix E for more detailed information on visitors' origins.

5. Was Oak Creek Canyon the Major Trip Destination?

The original roadside interview form had the interviewers ask if Oak Creek Canyon was a major trip destination. We realized midway through the project that this question was ambiguous, so after August 6, 1977 motorists were asked if Oak Creek Canyon was the major trip destination. Of the 947 respondents asked before August 6, 512 (54%) said that Oak Creek Canyon was a major trip destination, whereas only 42% of the 265 respondents asked after August 6 said that it was the major trip destination (next year we will simply ask for the major trip destination).

6. Was This Their First Visit to Oak Creek Canyon?

Sixty percent of the recreationists reported that this had been their first visit to Oak Creek Canyon in the past 12-14 months. Another 12% indicated they had visited once during that time period, with the remainder reporting more than one previous visit within the same time frame (next year we will ascertain if the visit is their first ever to Oak Creek Canyon).

7. What Did Recreationists Think was Their Most Important Activity?

In descending order of frequency, the most important activities were sightseeing (cited by 52% of the respondents); camping near

their vehicle (8%, although this figure is probably inflated since it reflects some interviews conducted at campsites during the period when there was extreme fire danger); swimming (8%, although this figure is likely inflated as well, since it reflects interviews conducted at swimming areas during the extreme fire period); fishing (4%); sunbathing (3%); hiking (3%); picnicking (3%); and auto driving (3%). Ten percent checked "other", rather than a listed activity. Almost half (45%) of those who checked "other" cited rest and relaxation as their most important activity. The remainder checked other miscellaneous activities.

8. In What Activities Did the Recreationists Actually Engage, and Where in Oak Creek Canyon Did They Engage in these Activities?

Recreationists were asked to report in which of 6 zones they engaged in any activity, not just the major activity as reported above. These 6 zones were A) developed public lands, B) developed private lands, C) natural area, D) trails, E) swim areas, and F) general undeveloped. Because these zones are activity related and not mutually exclusive, the information obtained from this question is difficult to interpret. These 6 zones should be analyzed for alternative divisions that would provide more useful information.

9. How Long Did the Recreationists Stay in Oak Creek Canyon?

The most frequent response to this question was 1 hour (41%), followed by 2 hours (14%), and by 3 hours (9%). Seven percent of the respondents reported spending 4 hours in the canyon, while an accumulated 10% reported between 5 hours and less than a day. Thus, 81% of the respondents spent less than 24 hours in the

canyon. Eight percent reported spending 1 day in the canyon, 5% between 1 and 2 days, and only 6% spent more than 2 days.

The question asking respondents to report how much time they spent in each of the 6 use zones resulted in essentially meaningless data, since the total number of hours reported in the 6 zones combined was only one-third the figure obtained by asking for the total time spent in the canyon.

10. What Type of Vehicle Was Driven?

Automobiles accounted for 64% of the vehicles stopped for roadside interviews, while trucks accounted for 13%, vans and campers for 8% each, automobiles towing trailers accounted for 4%, and motor homes for 3%. This small percentage for cars pulling trailers and motor homes may be due in part to sampling error. The first vehicle in a long, slow moving line of traffic (usually the larger trailers and motorhomes) was not pulled over for an interview.

11. How Many People Were Typically in a Vehicle, and What Was the Nature of the Group?

Parties of two were the most frequently encountered party size, accounting for 42% of the vehicles, while another 15% of the vehicles contained 3 people, 16% contained 4 people, 9% contained 5 people, another 9% contained more than 5 people, and only 6% contained just the driver. In all, the 1238 vehicles on which this data was obtained contained an estimated 3914 persons. In terms of the composition of the recreationist parties, 67% were families, 17% were frineds, 9% were family and friends together, less than 1% were organized groups, and 6% were alone.

Besides interviewing one person in the vehicle, interviewers counted the number of people per party and estimated their ages. Of the 3474 recreationists for which the interviewers had an opportunity to estimate age, there were: 12% each of males and females under the age of 15; 5% each of males and females between the ages of 16 and 20; 24% of males and 23% of females between the ages of 21 to 45; and 9% of males and 10% of females over age 45.

12. What Cautions Should be Placed on the Reported Data?

a) For every vehicle pulled over for a roadside interview, another 8.4 vehicles passed by while the interview was proceeding. Thus, our 1707 respondents by no means represent all vehicles passing by the roadside interview stations. Results from traffic counters were very unreliable, not allowing an accurate estimate of the relative proportion of our sample to the total number of vehicles in the canyon during the study period.

b) For considerations of safety, the following precautions were taken, each resulting in a somewhat biased sample of respondents:

i. Interviews were not conducted at night nor at dusk or dawn.

ii. Commercial vehicles were not stopped; thus those few recreationists who might use a commercial vehicle are not included in the sample;

iii. Due to the difficulty of singling out an individual car to pull over for an interview, large bottlenecks

of traffic were passed up. Thus, extremely slow drivers, who might cause the bottleneck, and extremely fast drivers, who are more likely to catch up to a bottleneck, were probably underrepresented in the sample.

c) As a result of doing interviews in 2 three-and-one-half hour blocks per day, scheduled randomly throughout the daylight hours, mid-morning and mid-afternoon hours were more highly sampled than either early morning, late afternoon, or lunchtime hours.

d) Difficulties were encountered in sampling at Grasshopper Point Station, since there was typically an overflow of cars in the parking lot by afternoon.

e) One of the interviewers reported that certain ethnic groups were less likely to submit to the interview, resulting in an underrepresentation of these groups. Unfortunately, records were not kept of the response rates of different ethnic groups.

f) Interviews conducted during the time Forest Service personnel were conducting fire stops were done at various use areas rather than at the roadside stations, thus assuring <u>all</u> respondents interviewed were recreationists. These interviews constituted only 2% of the respondents in the present study, resulting in minimal bias. However, this bias should be taken into account in the full scale study, should fire stops again be implemented. As already mentioned, the study for 1977 was a pilot study, and the

data reported above should be viewed in that light.

B. On Site Personal Interview Schedules

1. Opinions on Water Quality

Of the 109 people who were asked their views on the recreation level at the creek, 45 (42%) thought the use level was too heavy, 58 (53%) thought it was about right, and 6 (6%) thought it was too light. When asked to rate the water quality of Oak Creek, 92 respondents (72%) thought it was good, 18 (14%) thought it was average, and another 18 (14%) thought it was poor. In terms of their perceptions of the water quality at Oak Creek compared to other streams they had visited, 47 (46%) thought Oak Creek was better, 24 (24%) thought Oak Creek was about the same, and 31 (30%) thought Oak Creek was worse. Seventy-seven people at the Slide Rock area were asked if they had read the sign warning them of potentially high coliform bacteria levels. Fifty percent (38) said they had read it, and the other 50% (39) had not. Finally, 39 swimmers at Slide Rock were asked if they would continue to swim if the number of swimmers exceeded 250 at the area, and if they had been aware of the warning. Fifty percent (19) said they would continue to swim and 50% (20) said they would not.

2. Opinions on Pets in Swimming Areas

Of 161 respondents offering opinions, 136 (84%) favored eliminating pets from swim areas, with these opinions often quite emphatically and colorfully expressed. Only 25 (16%) favored allowing pets in swim areas, and the tone of their comments generally ranged from neutral ("doesn't bother me") to mildly positive.

3. Opinions on Camping and Campfires in Designated Campgrounds Only

Ninety-one percent (148) of the queried respondents said they favored the restrictions, with only 9% (14) of the respondents favoring camping away from campgrounds. Many people stressed the fire danger, no doubt due to the rash of forest fires in the Coconino National Forest last June and July.

4. Perceived Low Points of Trip

The most frequently cited source of dissatisfaction was littering, mentioned by 35% of the 164 respondents. Another 22% mentioned crowding as the low point of the trip, while 18% cited a need for increased facilities. Seventeen percent mentioned toilets (too few, too dirty, or in disrepair), and 7% cited problems with Forest Service personnel. Often, these were people who had violated forest regulations, such as restrictions on pets. In general, most of the sources of dissatisfaction can be viewed as stemming from the crowded conditions in Oak Creek Canyon.

5. Perceived High Points of Trip

In order of frequency of citation, the most satisfying aspects of the trip to the 154 respondents offering opinions were: The scenic beauty of the area (32%); management of the area (16%); cool temperatures (15%); water recreation (15%); being out of doors (11%); and the serenity (10%).

6. Reasons for Trip

When asked their reasons for coming to Oak Creek Canyon, 21% of the 206 respondents mentioned quiet relaxation, 16% mentioned scenery, 13% mentioned cool temperatures, 9% mentioned being in the outdoors, 8% mentioned water recreation and simple diversions

from every day routines, 6% cited children's satisfaction, 5% mentioned fishing, and the other 14% were spread among 10 other reasons.

7. Summary: On-Site Interviews

On-site interviews were not intended to be a random sampling of all users of Oak Creek Canyon. Instead, the purpose was to assess the opinions of specified groups of recreationists (i.e., swimmers, hikers, and campers) as they engaged in their recreational activities. Responses to this section should be compared to responses to the mailback questionnaire, when that data becomes available. Originally we had hoped that the campground hosts would be able to engage in on-site interviews for us among the campers. It soon became obvious that they were often too overburdened to handle the task. Less emphasis should be placed on campground hosts in the full scale study.

III. USE DATA

Ideally, traffic counters can be used in conjunction with actual road counts made during interviewing periods to estimate use. Traffic counters were used in Oak Creek Canyon, but their location along side turnoffs rather than on the main route (Arizona Highway 89A) results in these counts being unreliable.

Utilization of the following equation estimates use for Oak Creek Canyon for the period of May through September, 1977. Because there can be no cross check of this information with traffic counters, this data should be considered only a rough estimate.

$$ERU=\left[\left[RI+(RI \times AV)\right] / \frac{IH}{EH \times ED}\right] \times PS$$

ERU=Estimated recreation use (number of people)
RI= Number of recreation interviews
AV= Average number of vehicles that passed while one interview was being conducted (8.4)
IH= Number of hours actual interviewing
EH= Number of hours during the day that recreationists can be expected to leave the area (15 hours)
ED= Number of days that are being estimated (150)
PS= Average number of people per party (3.2)

Estimates were made for both the North and South Stations in the canyon. This information is summarized in Table 1. The South Station shows slightly more people (705,208) passing through the canyon in this direction than the North Station (649,226), however the South Station was sampled slightly more than the North Station. Use estimates for Grasshopper Point were not included because of its unique location off the main route.

An estimated total of 1,354,435 people passed through Oak Creek Canyon during May through September, 1977. Of this amount, 72% (975,193) were there for recreational purposes.

Table 1. Estimated use in Oak Creek Canyon for May through September, 1977

Station	Estimated Total Use (Number of People)	Estimated Number of Recreationists[a/]
North	649,226	467,443
South	705,208	507,750
TOTAL	1,354,435	975,193

a/Recreationists comprised 72% of the total use.

IV. SUGGESTED IMPROVEMENTS FOR A FULL SCALE STUDY

* Hire at least two interviewers. The success of the pilot study depended in part on volunteers. While volunteers should not be discouraged, it is risky

to place so much weight on the goodwill of a student volunteer. If we have more than two interviewers, one could be assigned to on-site interviews.

* Research team should have its own traffic signs. Rounding up and retaining the necessary traffic signs became troublesome during the pilot study.

* Traffic counters should be under control of research team. The traffic counters during the pilot study were almost a complete flop, making it difficult to estimate total use.

* Contingency plans should be available for fire stop periods. During the pilot study, our plans were "seat of the pants". Fortunately, the extreme fire danger period did not last very long. However, we should not anticipate such fortuitous circumstances again.

* The definition of the use zone should be reassessed. It is the feeling of the research team that the present breakdown into zones was not very useful. If Forest Service personnel concur, they should be changed.

* Forms should be revised. Minor revisions in the forms are advisable based on our experiences with them during the pilot study.

V. CONCLUSIONS

Much has been learned from the pilot study, and useful information has already been generated, with more analyses yet to come. A larger scale study, capitalizing on our experiences of the pilot study, should result in high quality information which is of use to Coconino National Forest personnel.

C1 1 Interviewer_____ 75-80 IDENT_____

2 Station N(1) S(2) G(3)

3-5 Date_____

6 Time of Week: Weekday (1) Weekend (2) Holiday (3)

7 Trip Purpose: Rec (1) Non-Rec (2) To-From Rec (3)

8 Commuter (1) Canyon Resident (2)

9-11 Total Time Spent in Area _____ hrs.

Time Spent in Zones (Hrs.)?

A	B	C	D	E	F
12-14	15-17	18-20	21-23	24-26	27-29

C2	Activity		Zone				C2	Activity		Zone			
(1)	Swimming	1-4					(10)	Motorcycling	37-40				
(2)	Sunbathing	5-8					(11)	Bicycling	41-44				
(3)	Camping Near Auto	9-12					(12)	Gathering Forest Products	45-48				
(4)	Camping Away From Auto	13-16					(13)	Hiking/Walking	49-52				
(5)	Fishing	17-20					(14)	Technical Mt. Climbing	53-56				
(6)	Picnicking	21-24					(15)	Horseback Riding	57-60				
(7)	Auto Driving	25-28					(16)	Nature Study	61-64				
(8)	Sightseeing	29-32					(17)	Other (list)	65-68				
(9)	Tubing	33-36											

73 (2)
75-80 IDENT

C1 30-31 Which of the above activities was the most important for you coming to this area (above #)? _____

32-33 How many previous visits to the area have you made in the last 12-14 months? #_____

34 Is Oak Creek Canyon a major trip destination? ___ Yes (1) ___ No (2)

35 Group Composition: ___ Family (1) ___ Family & Friends (3) ___ Alone (5) ___ Friends (2) ___ Organized Group (4)

Address of Permanent Resident:

C3 2-29 Name_____ 73(3) 75-80 IDENT

2-35 Street Address _____ 73(4) 75-80 IDENT

2-35 City, State, Zip _____ 73(5) 75-80 IDENT

C1 36 Type of Vehicle: Car (1) Truck (2) Van (3) Camper (4) Motor Home (5)
37 Utility Trailer (1) Camper Trailer (2)

38-39 Total # of People _____

-15		16-20		21-45		45+		# Cars Passed
M	F	M	F	M	F	M	F	

40-41 Time of Day _____

73 (1)

75-80 IDENT

College of Forestry and Natural Resources
Department of Recreation Resources

Colorado State University
Fort Collins, Colorado
80523

Dear Oak Creek Canyon User:

We appreciate the cooperation you gave us last summer when we interviewed you in Oak Creek Canyon, near Flagstaff. Your name has been selected randomly from those interview records, and we need your help again.

Would you please take about 15 minutes to complete the enclosed questionnaire? It was designed to find out more about the recreation opportunities preferred by users of Oak Creek Canyon. The information is being collected in cooperation with the managers of the area and will be used to help guide future management decisions. Your response is important in achieving this goal.

It would help us if you would complete the questionnaire as soon as possible. Then please fold it and mail it back in the postage-paid envelope provided. Your answers will be kept confidential.

Thank you in advance for your help.

Sincerely,

Deborah J. Allen

Deborah J. Allen
Research Assistant

DJA/cat

enc.

APPENDIX B-2

OAK CREEK CANYON SURVEY*
WINTER 1978

This questionnaire has been designed to learn more about the preferences of the users of Oak Creek Canyon. Please ignore the numbers in parentheses on the right which will be used for data analysis.

I. The managers of Oak Creek Canyon are interested in your views concerning possible (but not planned) developments. Please indicate how much you favor or oppose each of these possible developments.

Possible Development	No Opinion	Strongly Favor	Moderately Favor	Slightly Favor	Neither Favor Nor Oppose	Slightly Oppose	Moderately Oppose	Strongly Oppose	
1. Build more hiking trails in the canyon									(1.1)
2. Keep campgrounds open longer than presently open									
3. Provide more information on facilities and activities in the canyon									
4. Develop a tents only campground in addition to existing campgrounds									
5. Develop a backpacker campground in addition to existing campgrounds									(1.5)
6. Develop a bicyclist campground in addition to the existing campgrounds									
7. Develop horseback riding trails in the canyon									
8. Expand the access and parking facilities at Grasshopper Point swimming area									
9. Close the present hiking trails in the canyon									(1.9)

II. Oak Creek Canyon managers have outlined three specific problem areas in the canyon and several possible but not planned management actions. These three areas are: 1) traffic, 2) water quality, and 3) land acquisition. Please give the response that best describes your opinion of each of the following possible management actions.

Possible Actions	Strongly Favor	Moderately Favor	Slightly Favor	Neither Favor Nor Oppose	Slightly Oppose	Moderately Oppose	Strongly Oppose	
A. In the past, increasing traffic has caused congestion in the canyon. For safety and other reasons, the Forest Service should:								
1. Expand present parking facilities in the canyon								(1.10)
2. Move camping outside of the canyon and allow day use only								
3. Make the canyon a scenic drive with only limited parking in the canyon								
4. Maintain parking lots outside the canyon with access to the canyon being by bus. Bus fare would not exceed $2.00 per person.								
5. Expand camping facilities in the campgrounds								
6. Other (please list) _____ _____ _____								(1.15)

*For information on this survey, please feel free to contact Deborah J. Allen or Dr. Perry J. Brown, Department of Recreation Resources, Colorado State University, Fort Collins, Colorado 80523. Phone: 303-491-7163.

Possible Actions

	Strongly Favor	Moderately Favor	Slightly Favor	Neither Favor Nor Oppose	Slightly Oppose	Moderately Oppose	Strongly Oppose	
B. Because of the volume of use the canyon receives, the Forest Service is concerned about the water quality of Oak Creek. To maintain the water quality in the Canyon, the Forest Service should:								
1. Limit swimming to Grasshopper Point and Slide Rock only								
2. Allow only fishing (no swimming) in the creek								
3. Reduce the number of campgrounds								
4. Do not allow swimming in the creek when water quality is low enough to create a health hazard								
5. Strictly enforce the no pets regulation at the swimming areas								(1.20)
6. Other (please list) _____								
C. If additional land is acquired in the canyon for public use, the Forest Service should:								
1. Purchase as much private land in the canyon as possible								
2. Purchase only that land which is necessary to maintain Forest Service facilities and operations								
3. Purchase private lands as it comes on the market								
4. Acquire land through condemnation								(1.25)
5. Other (please list) _____								(1.26-27)

III. Do you know what Mayhew Lodge is: ___ No. Please go to Question V (1.28)
___ Yes. Please go to Question IV

IV. What do you think should be done with Mayhew Lodge: (check one of the following) (1.29)

___ Torn down
___ Allowed to wear down
___ Restored and operated at Forest Service expense for public use
___ Restored by the Forest Service, operated by private concessionaire
___ Other (please list) _____

V. Based on what you observed in the canyon, do you think the current number of law enforcement officers (from U.S. Forest Service, County Sheriff Office, State Police Force, etc.) during the summer use season should be: (1.30)

Decreased considerably	Decreased somewhat	Remain the same	Increased somewhat	Increased considerably	No opinion

VI. If there are any current management actions you would like to see changed, or if you have recommendations for new actions, please list them briefly below: (1.31)

_____

_____

_____

APPENDIX B-4

VII. How many total visits did you make to Oak Creek Canyon during the period May 1 to September 30, 1977?_____ (1:32-33)

VIII. Please check each of the activities you engaged in when visiting Oak Creek Canyon last summer.

1. ____ Swimming (1:34)
2. ____ Sunbathing (1:35)
3. ____ Camping (1:36)
4. ____ Fishing (1:37)
5. ____ Picnicking (1:38)
6. ____ Sightseeing (1:39)
7. ____ Auto Driving (1:40)
8. ____ Hiking (1:41)
9. ____ Other (please list) _____ (1:42-43)

IX. Different types of outdoor recreation opportunities provide users with different types of experience. Managers of Oak Creek Canyon desire to know what adds to or detracts from the level of satisfaction you get from visiting that area. Because preferences differ for different activities, these questions should be answered with only one activity (i.e., camping, swimming, or whatever) in mind. Please think about that one activity which you engaged in most in Oak Creek Canyon. Please list the activity in the blank _____ (1:44)

Imagine that you were to engage in that activity in Oak Creek Canyon next summer (Summer of 1978). Then rate how much you think each of the following types of experience would either add to or detract from the level of satisfaction you would receive from engaging in that activity. If you feel you would not realize a particular experience (listed below) in Oak Creek Canyon, just check the neutral box for the item. Please do not be bothered by the duplication or similarity of some items, as we need all items for greater accuracy.

	EFFECT ON SATISFACTION									
	ADDS					DETRACTS				
Items for your activity	Most Strongly	Strongly	Moderately	Slightly	Neutral	Slightly	Moderately	Strongly	Most Strongly	
1. Getting away from the city for awhile										
2. Getting out-of-doors										
3. Being on your own										
4. Practicing skills										
5. Using your equipment										(1:45)
6. Showing others you could do it										
7. Exploring the area										
8. Physically resting										
9. Telling others about your trip										
10. Being away from crowds of other people										(1:50)
11. Doing something with your family										
12. Enjoying the scenery										
13. Taking risks										
14. Being in control of things that happen										
15. Experiencing the tranquility										(1:55)
16. Experiencing the temperature-climate of the area										
17. Being with your spouse or another member of the family										
18. Showing yourself you could do it										
19. Being obligated to no one										
20. Thinking about your personal values										(1:60)
21. Doing things with your companions										
22. Experiencing the excitement there										
23. Trying to keep physically fit										
24. Meeting other people in the area										
25. Enjoying the scenic beauty										(1:65)

Items for Your Activity	EFFECT ON SATISFACTION: ADDS TO — Most Strongly	Strongly	Moderately	Slightly	Neither Adds Nor Detracts	DETRACTS FROM — Slightly	Moderately	Strongly	Most Strongly	
26. Teaching your outdoor skills to others										
27. Experiencing new and different things										
28. Avoiding the unexpected										
29. Feeling free from society's restrictions										
30. Thinking about your future										(1:70)
31. Getting away from other people										(2:1)
32. Being close to nature										
33. Experiencing the fast-paced nature of things here										
34. Being away from the noise back home										
35. Sharing your knowledge with others										(2:5)
36. Being with people having similar values										
37. Learning more about nature										
38. Being near considerate people										
39. Leading other people										
40. Increasing your knowledge about things in the canyon										(2:10)
41. Reflecting on personal religious, or other spiritual, values										
42. Feeling good after being physically active										
43. Releasing or reducing some built-up tensions										
44. Experiencing the peace and calm										
45. Developing your ability and skills										(2:15)
46. Observing other people in the area										
47. Enjoying the sights and sounds of nature										
48. Having a change from everyday life										
49. Experiencing the open space there										
50. Being with other members of your group										(2:20)
51. Gaining an appreciation of nature										
52. Feeling frightened										
53. Being near others who could help if you need them										
54. Getting exercise										
55. Being on your own										(2:25)
56. Reflecting on past memories										
57. Doing something creative such as sketching, painting, photography										
58. Other (please list)_____										(2:28)

X. Now please go back and look at all the experience items you marked as neutral in the above list, because you did not expect to realize them. Then circle those neutral experience items that you would like to realize if you were to engage in the listed activity in Oak Creek Canyon next summer.

XI. About how many miles was Oak Creek Canyon from your place of residence during the summer of 1977? (2:30)

-50 51-100 101-200 201-400 401-600 +600

XII. Which of the following best describes your visit(s) to Oak Creek Canyon last summer? (2:31)

___ Oak Creek Canyon was the major trip destination and you spent most of your time in the canyon.
___ Oak Creek Canyon was a major trip destination, but you spent considerable time on side trips outside the canyon
___ Oak Creek Canyon was not a major trip destination, and you stopped by on your way to a major destination elsewhere.
___ Other (please list)_____

_____

XIII. Outdoor recreation managers are concerned about the effect of rising gasoline prices on recreation use and opportunity. This is an "iffy" question, but give it your best guess: what would the price of gasoline have had to have been per gallon during the summer of 1977 before you would not have visited Oak Creek Canyon.? (2:32)

75¢-85¢ | 86¢-$1.00 | $1.01-1.25 | $1.26-1.50 | $1.51-2.00 | Over $2.00

XIV. In which age bracket do you fall? (2:33)

-12 | 12-15 | 16-20 | 21-26 | 27-35 | 36-45 | 46-55 | 56-65 | 65+

XV. Which of the following best describes where your permanent home is located (please check one blank). (2:34)

____ The central area of a large city of more than 500,000 people
____ The central area of a medium size city of 100,000-500,000 people
____ A suburb of a medium or large city
____ A small city of 50,000 to 100,000 people
____ A town of 5,000 to 50,000 people
____ Village of less than 5,000 people
____ Farm or rural area

XVI. Your sex: ___ Female ___ Male (2:35)

XVII. Which of the following best describes your occupation: (2:36-37)

____ Hourly laborer
____ Clerical
____ Salesman
____ Skilled tradesman
____ Technical
____ Farmer
____ Manager or Administrator
____ Professional
____ Homemaker
____ Student
____ Retired, unemployed, or disabled
____ Other (please list)_____

THANK YOU FOR YOUR HELP!

APPENDIX C-1

PERSONAL INTERVIEW

Major Activities Pursued: _____
(circle the major activity)

Years Engaged in the Major Activity: _____

Length of Stay (Hours & Days) So Far _____ Additional Planned _____

Travel Route _____

Two High Points of trip so far (Most satisfying) _____

Low Points of trip (Problems - Dissatisfactions) _____

Reasons for visit (type of satisfaction expected and valued; PROBE for specifics)

Specific features of physical setting expected and valued (PROBE for specifics)

If have used the water, swimming--fishing, views of water quality

APPENDIX C-2

Interviewer: _____

OBSERVATIONS

Date: _____ WD _____ WE/H _____

No. of People in Party by Age Group

-15	16-20	21-45	+45	Total

Party composition by sex: No. Males _____ No. Females _____

Equipment (Fishing, hunting, cameras, etc.) _____

Violations of Rules and Regulations (open fires; camping within 100 feet of lakes, streams, trails, or other camping parties; cutting live vegetation; litter; dogs off leash; depreciative and undesirable social behavior; firearms, etc.)

Other Observations (General use level at time of interview, weather, etc., use on or off trail, party in transit or set-up, etc.)

Views of elimination of pets from swimming area

Views on no camping or fires except in campground.

Dear Oak Creek Canyon User:

Thank you for taking a few minutes of your time to fill out this questionnaire. The questionnaire is intended to help us understand why people engage in various forms of recreation. Hopefully, once we have thoroughly investigated the "why" of recreation, we will be in a position to advise managers in how to provide opportunities to make your recreational experiences as satisfying as possible. By answering these questions, you will be helping us obtain our long range goals.

The major part of this questionnaire consists of 23 types of experiences or outcomes which we have found in the past to have been related to recreational behavior. For each of these 23 outcomes, we would like you to answer three questions. The first question asks you to respond in terms of how desirable the outcome is; the second question asks you to respond in terms of how important the outcome is; and the last question asks you to respond as to whether the activity you are about to engage in (hiking, swimming, camping) adds to or detracts from obtaining the outcome. In answering each of these three questions, please use the numbers indicated on the top of the page.

For example, an outcome of recreation might be "learning more about nature". If you think this is extremely important, you would respond with a +3 and if you also like this a little, you would respond with a +1. Furthermore, if you thought that _____ detracts
(activity)
moderately from "learning about nature", you would respond with a -2.

Please answer all questions.

APPENDIX C -2

APPENDIX D-2

	IMPORTANCE	DESIRABILITY	EXTENT TO WHICH _____ LEADS TO OBTAINING EACH OUTCOME
	3 = Extremely Important	3 = I like this very much	4 = Adds most strongly to obtaining outcome
	2 = Quite Important	2 = I like this somewhat	3 = Adds strongly to obtaining outcome
	1 = Slightly Important	1 = I like this a little	2 = Adds moderately to obtaining outcome
	0 = Neither Important nor Unimportant	0 = Neither like nor Dislike	1 = Adds slightly to obtaining outcome
	-1 = Slightly Unimportant	-1 = I dislike this a little	0 = Neither adds or detracts from obtaining outcome
	-2 = Quite Unimportant	-2 = I dislike this somewhat	-1 = Detracts slightly from obtaining outcome
	-3 = Extremely Unimportant	-3 = I dislike this very much	-2 = Detracts moderately from obtaining outcome
			-3 = Detracts strongly from obtaining outcome
			-4 = Detracts most strongly from obtaining outcome

OUTCOME			
1. Getting exercise	_____	_____	_____
2. Changing from my daily routine	_____	_____	_____
3. Meeting new people	_____	_____	_____
4. Relaxing physically	_____	_____	_____
5. Being in the nice temperature here	_____	_____	_____
6. Enjoying the scenery	_____	_____	_____
7. Being close to nature	_____	_____	_____
8. Getting away from the clatter and racket for awhile	_____	_____	_____
9. Thinking about my personal values	_____	_____	_____
10. Having a chance for spiritual growth and development	_____	_____	_____
11. Getting thrills	_____	_____	_____
12. Observing other people	_____	_____	_____
13. Keeping physically fit	_____	_____	_____
14. Changing from everyday life			

IMPORTANCE

3 = Extremely Important
2 = Quite Important
1 = Slightly Important
0 = Neither Important nor Unimportant
-1 = Slightly Unimportant
-2 = Quite Unimportant
-3 = Extremely Unimportant

DESIRABILITY

3 = I like this very much
2 = I like this somewhat
1 = I like this a little
0 = Neither like nor Dislike
-1 = I dislike this a little
-2 = I dislike this somewhat
-3 = I dislike this very much

EXTENT TO WHICH _____ LEADS TO OBTAINING EACH OUTCOME

4 = Adds most strongly to obtaining outcome
3 = Adds strongly to obtaining outcome
2 = Adds moderately to obtaining outcome
1 = Adds slightly to obtaining outcome
0 = Neither adds or detracts from obtaining outcome
-1 = Detracts slightly from obtaining outcome
-2 = Detracts moderately from obtaining outcome
-3 = Detracts strongly from obtaining outcome
-4 = Detracts most strongly from obtaining outcome

OUTCOME			
15. Talking to new and varied people	_____	_____	_____
16. Getting physical rest	_____	_____	_____
17. Temperatures are more agreeable here	_____	_____	_____
18. Taking in the scenic beauty	_____	_____	_____
19. Enjoying the smells and sounds of nature	_____	_____	_____
20. Getting away from the noise back home	_____	_____	_____
21. Having the chance to think about who I am	_____	_____	_____
22. Having a lot of action here	_____	_____	_____
23. Feeling my independence	_____	_____	_____

APPENDIX D-4

1. How often do you engage in _____ (activity)

Once a year	2-4 Times a year	5-9 Times a year	10-15 Times a year	More than 15 times a year

2. How many hours do you expect to spend in _____ (activity) today?

Less than 1 hour	1 Hour	2 Hours	3 Hours	4 Hours	5 Hours	6 Hours	7 Hours	8 Hours

9 Hours	10 Hours	11 Hours	12 Hours	More than 12 hours

3. How much do you usually enjoy hiking?

Enjoy a great deal	Enjoy pretty much	Enjoy some	Enjoy slightly	Do not enjoy at all	Never hike

4. How much do you usually enjoy swimming?

Enjoy a great deal	Enjoy pretty much	Enjoy some	Enjoy slightly	Do not enjoy at all	Never swim

5. How much do you usually enjoy camping?

Enjoy a great deal	Enjoy pretty much	Enjoy some	Enjoy slightly	Do not enjoy at all	Never camp

6. How much do you expect to enjoy _____ (activity) today?

Will enjoy a great deal	Will enjoy pretty much	Will enjoy some	Will enjoy slightly	Will not enjoy at all

7. Just for a moment, imagine that <u>you</u> could set a price for people to _____ (activity) in Oak Creek Canyon. (There is <u>absolutely no intention</u> of charging for activities that are not now charged for; we would just like you to imagine that this is the case.) What do you think would be a fair price for _____ (activity) at this spot in Oak Creek?

Nothing	50¢ or less	Between 50¢ and $1	Between $1 & $2	Between $2 & $4	Between $4 & $6	More than $6

8. Your sex: _____ Male _____ Female

9. Your age bracket:

less than 12	12-15	16-18	19-21	22-26	27-35	36-55	55+

Dear Oak Creek Canyon User:

Thank you for taking a few minutes of your time to fill out this questionnaire. The questionnaire is intended to help us understand why people engage in various forms of recreation. Hopefully, once we have thoroughly investigated the "why" of recreation, we will be in a position to advise managers in how to provide opportunities to make your recreational experiences as satisfying as possible. By answering these questions, you will be helping us obtain our long range goals.

The major part of this questionnaire consists of 23 types of experiences or outcomes which we have found in the past to have been related to recreational behavior. For each of these 23 outcomes, we would like you to answer three questions. The first question asks you to respond in terms of how desirable the outcome is; the second question asks you to respond in terms of how important the outcome is; and the last question asks you to respond as to whether the activity you are about to engage in (hiking, swimming, camping) adds to or detracts from obtaining the outcome. In answering each of these three questions, please use the numbers indicated on the top of the page.

For example, an outcome of recreation might be "learning more about nature". If you think this is extremely important, you would respond with a +3 and if you also like this a little, you would respond with a +1. Furthermore, if you thought that _____ detracts
(activity)
moderately from "learning about nature", you would respond with a -2.

Please answer all questions.

APPENDIX D-2

IMPORTANCE

3 = Extremely Important
2 = Quite Important
1 = Slightly Important
0 = Neither Important nor Unimportant
-1 = Slightly Unimportant
-2 = Quite Unimportant
-3 = Extremely Unimportant

DESIRABILITY

3 = I like this very much
2 = I like this somewhat
1 = I like this a little
0 = Neither like nor Dislike
-1 = I dislike this a little
-2 = I dislike this somewhat
-3 = I dislike this very much

EXTENT TO WHICH _____ LEADS TO OBTAINING EACH OUTCOME

4 = Adds most strongly to obtaining outcome
3 = Adds strongly to obtaining outcome
2 = Adds moderately to obtaining outcome
1 = Adds slightly to obtaining outcome
0 = Neither adds or detracts from obtaining outcome
-1 = Detracts slightly from obtaining outcome
-2 = Detracts moderately from obtaining outcome
-3 = Detracts strongly from obtaining outcome
-4 = Detracts most strongly from obtaining outcome

OUTCOME			
1. Getting exercise	_____	_____	_____
2. Changing from my daily routine	_____	_____	_____
3. Meeting new people	_____	_____	_____
4. Relaxing physically	_____	_____	_____
5. Being in the nice temperature here	_____	_____	_____
6. Enjoying the scenery	_____	_____	_____
7. Being close to nature	_____	_____	_____
8. Getting away from the clatter and racket for awhile	_____	_____	_____
9. Thinking about my personal values	_____	_____	_____
10. Having a chance for spiritual growth and development	_____	_____	_____
11. Getting thrills	_____	_____	_____
12. Observing other people	_____	_____	_____
13. Keeping physically fit	_____	_____	_____
14. Changing from ave[illegible] life			

APPENDIX D-3

	IMPORTANCE	DESIRABILITY	EXTENT TO WHICH _____ LEADS TO OBTAINING EACH OUTCOME
	3 = Extremely Important 2 = Quite Important 1 = Slightly Important 0 = Neither Important nor Unimportant -1 = Slightly Unimportant -2 = Quite Unimportant -3 = Extremely Unimportant	3 = I like this very much 2 = I like this somewhat 1 = I like this a little 0 = Neither like nor Dislike -1 = I dislike this a little -2 = I dislike this somewhat -3 = I dislike this very much	4 = Adds most strongly to obtaining outcome 3 = Adds strongly to obtaining outcome 2 = Adds moderately to obtaining outcome 1 = Adds slightly to obtaining outcome 0 = Neither adds or detracts from obtaining outcome -1 = Detracts slightly from obtaining outcome -2 = Detracts moderately from obtaining outcome -3 = Detracts strongly from obtaining outcome -4 = Detracts most strongly from obtaining outcome
OUTCOME			
15. Talking to new and varied people	_____	_____	_____
16. Getting physical rest	_____	_____	_____
17. Temperatures are more agreeable here	_____	_____	_____
18. Taking in the scenic beauty	_____	_____	_____
19. Enjoying the smells and sounds of nature	_____	_____	_____
20. Getting away from the noise back home	_____	_____	_____
21. Having the chance to think about who I am	_____	_____	_____
22. Having a lot of action here	_____	_____	_____
23. Feeling my independence	_____	_____	_____

1. How often do you engage in _____ (activity)

Once a year | 2-4 Times a year | 5-9 Times a year | 10-15 Times a year | More than 15 times a year

2. How many hours do you expect to spend in _____ (activity) today?

Less than 1 hour | 1 Hour | 2 Hours | 3 Hours | 4 Hours | 5 Hours | 6 Hours | 7 Hours | 8 Hours

9 Hours | 10 Hours | 11 Hours | 12 Hours | More than 12 hours

3. How much do you usually enjoy hiking?

Enjoy a great deal | Enjoy pretty much | Enjoy some | Enjoy slightly | Do not enjoy at all | Never hike

4. How much do you usually enjoy swimming?

Enjoy a great deal | Enjoy pretty much | Enjoy some | Enjoy slightly | Do not enjoy at all | Never swim

5. How much do you usually enjoy camping?

Enjoy a great deal | Enjoy pretty much | Enjoy some | Enjoy slightly | Do not enjoy at all | Never camp

6. How much do you expect to enjoy _____ (activity) today?

Will enjoy a great deal | Will enjoy pretty much | Will enjoy some | Will enjoy slightly | Will not enjoy at all

7. Just for a moment, imagine that you could set a price for people to _____ (activity) in Oak Creek Canyon. (There is absolutely no intention of charging for activities that are not now charged for; we would just like you to imagine that this is the case.) What do you think would be a fair price for _____ (activity) at this spot in Oak Creek?

Nothing | 50¢ or less | Between 50¢ and $1 | Between $1 & $2 | Between $2 & $4 | Between $4 & $6 | More than $6

. Your sex: _____ Male _____ Female

. Your age bracket:

less than 12 | 12-15 | 16-18 | 19-21 | 22-26 | 27-35 | 36-55 | 55+

APPENDIX E

RESULTS OF THE EXPECTANCY QUESTIONNAIRE

The expectancy questionnaire exhibited in Appendix D was administered to 29 campers, 32 swimmers, and 10 hikers, generally as they were about to embark on their recreational activity. There was no attempt to randomly sample recreationists because the major objectives of this portion of the research project did not include concern for extrapolating to some larger user population. Instead, the focus of this questionnaire was purely to explore some of the relations among factors underlying recreational behavior, and to help refine the expectancy questionnaire for the 1978 study.

The 23 outcomes used in the expectancy questionnaire were not meant to be comprehensive. They were chosen so as to be representative of some of the important outcomes recreationists might expect in Oak Creek Canyon. This again reflects the exploratory nature of this part of the research project. The major results of the expectancy research will be discussed in the context of answers to three underlying research questions.

1. "What is the relationship between the expectation of receiving some recreational outcome and the extent to which that outcome is valued?"

To answer this question, what is required is the correlation between the two variables measuring value of an outcome (i.e., Importance and Desirability Ratings) and the ratings of the expectation of obtaining the rating. These correlations must be calculated for each individual since the question itself focuses on how an individual perceives the elements of an expectancy-value model. In accord with this reasoning, the three correlations among the three ratings of the 23 outcomes were calculated for each of the 71 recreationists. The averages of such correlations

were then calculated for each of the three user groups: hikers, campers, and swimmers. These average correlations are shown below:

Group	Average Correlation Between Importance and Desirability	Importance and Expectancy	Desirability and Expectancy
Hikers (N=10)	.806	.729	.809
Campers (N=29)	.833	.766	.776
Swimmers (N=31)	.491	.459	.664

These results are somewhat disappointing. At the minimum, we would have liked the two variables which were intended to measure value of an outcome (i.e., importance and desirability) to have higher average correlations than the correlation of either of these variables with the measure of value of an outcome. A comparison of the first column with the second and third columns indicates that there was certainly not a strong trend in this direction.

At first glance, the correlations between the expectancy term and the value terms seem inordinately high. An implicit assumption in expectancy-value models is that expectancy and value are essentially independent. However, this assumption is one which is made in the context of a <u>population of activities</u>. When we focus on an activity which is actually chosen by an individual, we would assume that the individual chose the activity because he expects to obtain highly valued outcomes and to avoid highly disvalued outcomes. Thus, when our focus is on a given user group, a high correlation between expectancy and value is to be expected.

2. "What are the relationships between the expectancy and value ratings of the 23 outcomes and the questions concerning the recreational activity itself?"

Before we discuss the relations among the variables used in the expectancy, we should note that three of the 23 outcomes were consistently

rated lower than all the others in terms of importance, desirability, and expectancy. These were item 11 ("getting thrills"), item 12 ("observing other people"), and item 22 ("having a lot of action here"). These were the only outcomes which received ratings of less than 1.0 on the importance scale ("slightly important"), the desirability scale ("I like this a little"), and the expectancy scale ("Adds slightly to obtaining outcome").

Table E-1 shows the correlations between the sum of the expectancy-times-value of the twenty-three outcomes and the question related to the recreational activity itself. Because of the relatively small sample size for each user group, the correlations were calculated collapsing over all 71 recreationists. While all but one of the correlations are statistically significant, the absolute magnitude of the correlations is disappointing. For example, only about 10 percent of the variance in the variable "How much do you expect to enjoy (the recreational activity) today?" was accounted for by the expectancy-times-value of the outcomes. Collapsing over different user groups may account, in part, for the disappointingly low correlations. It is anticipated that the 1978 study will obtain ample sample sizes for the different user groups to allow separate subgroup analyses.

3. "What are some of the correlates of the recreationist's willingness-to-pay for that day's recreational opportunity?"

One of the questions on the expectancy questionnaire asked the respondents to set a "fair" price for engaging in the given recreational opportunity at Oak Creek. The average response was 75¢ for hikers, 42¢ for swimmers, and $1.63 for campers, for an overall average of just under $1.00 per recreational activity. The best predictors of willingness to pay, in order of magnitude of correlation coefficients, were: (a) the extent to which the individual expected to enjoy the recreational activity that

Table E-1. Correlations between expectancy X value and recreation questions.

	Frequency of Recreation Activity	Hours Spent in Activity Today	How much do you usually enjoy: Hiking	Swimming	Camping	Expect to Enjoy Activity Today
(Importance) X (Expectancy)	.24	.34	.35	.36	.42	.34
(Desirability) X (Expectancy)[1]	.20*	.32	.30	.28	.37	.28

*All but this correlation are statistically significant ($p<.05$).

[1]Correlation between the two (Expectancy) X (Value) terms is .88.

day (r=.64); (b) the number of hours anticipated to be spent in the activity that day (r=.56); (c) the frequency with which the activity is engaged (r=.31); (d) the sum of importance-times-expectancy ratings of the 23 outcomes (r=.27); and (e) the sum of desirability times-expectancy ratings of the 23 outcomes (r=.24).

All of these correlations are statistically significant. These results are provocative in indicating a large attitudinal component underlying willingness to pay. However, the fact that small sample sizes necessitated collapsing over the three different user groups again results in applying extreme caution to these findings. It is anticipated that the 1978 study will allow further examination of the correlates of willingness to pay for recreational opportunities for different user groups.

APPENDIX F

OAK CREEK CANYON SURVEY*
WINTER 1978

This questionnaire has been designed to learn more about the preferences of the users of Oak Creek Canyon. Please ignore the numbers in parentheses on the right which will be used for data analysis.

I. The managers of Oak Creek Canyon are interested in your views concerning possible (but not planned) developments. Please indicate how much you favor or oppose each of these possible developments.

Possible Development	N	No Opinion	Strongly Favor	Moderately Favor	Slightly Favor	Neither Favor Nor Oppose	Slightly Oppose	Moderately Oppose	Strongly Oppose		$\bar{x}$	SD
		PERCENT										
1. Build more hiking trails in the canyon	524	12	33	25	7	10	4	3	6	(1.1)	2.73	1.88
2. Keep campgrounds open longer than presently open	536	18	31	18	9	14	2	3	5		2.15	1.91
3. Provide more information on facilities and activities in the canyon	542	7	47	16	9	13	2	1	4		2.04	1.64
4. Develop a tents only campground in addition to existing campgrounds	537	13	34	17	7	15	4	3	8		2.38	2.02
5. Develop a backpacker campground in addition to existing campgrounds	543	14	29	18	11	16	2	2	8	(1.5)	2.38	1.97
6. Develop a bicyclist campground in addition to the existing campgrounds	542	16	18	13	11	21	5	4	12		2.96	2.22
7. Develop horseback riding trails in the canyon	540	11	22	15	12	14	7	4	15		3.09	2.2
8. Expand the access and parking facilities at Grasshopper Point swimming area	539	13	33	15	7	11	4	4	13		2.63	2.28
9. Close the present hiking trails in the canyon	529	9	1	1	2	8	4	9	66	(1.9)	5.79	2.18

II. Oak Creek Canyon managers have outlined three specific problem areas in the canyon and several possible but not planned management actions. These three areas are: 1) traffic, 2) water quality, and 3) land acquisition. Please give the response that best describes your opinion of each of the following possible management actions.

Possible Actions

A. In the past, increasing traffic has caused congestion in the canyon. For safety and other reasons, the Forest Service should:

	N	Strongly Favor	Moderately Favor	Slightly Favor	Neither Favor Nor Oppose	Slightly Oppose	Moderately Oppose	Strongly Oppose		$\bar{x}$	SD
		PERCENT									
1. Expand present parking facilities in the canyon	539	38	16	13	8	6	5	15	(1.10)	3.01	2.18
2. Move camping outside of the canyon and allow day use only	538	9	5	8	13	8	11	47		5.24	2.06
3. Make the canyon a scenic drive with only limited parking in the canyon	535	12	7	8	8	8	13	45		5.11	2.21
4. Maintain parking lots outside the canyon with access to the canyon being by bus. Bus fare would not exceed $2.00 per person.	538	9	8	7	8	8	10	52		5.33	2.12
5. Expand camping facilities in the campgrounds	531	31	16	11	15	6	6	16		3.30	2.18
6. Other (please list) _____ _____ _____									(1.15)		

*For information on this survey, please feel free to contact Deborah J. Allen or Dr. Perry J. Brown, Department of Recreation Resources, Colorado State University, Fort Collins, Colorado 80523. Phone: 303-491-7163.

Possible Actions

B. Because of the volume of use the canyon receives, the Forest Service is concerned about the water quality of Oak Creek. To maintain the water quality in the Canyon, the Forest Service should:

	N	Strongly Favor	Moderately Favor	Slightly Favor	Neither Favor Nor Oppose	Slightly Oppose	Moderately Oppose	Strongly Oppose		$\bar{x}$	SD
1. Limit swimming to Grasshopper Point and Slide Rock only	511	28	13	10	19	8	7	15		3.45	2.14
2. Allow only fishing (no swimming) in the creek	519	15	6	8	15	10	13	33		4.69	2.18
3. Reduce the number of campgrounds	500	8	4	7	18	14	10	39		5.13	1.94
4. Do not allow swimming in the creek when water quality is low enough to create a health hazard	518	69	13	6	5	2	2	3		1.72	1.40
5. Strictly enforce the no pets regulation at the swimming areas	521	72	7	4	6	4	2	6	(1.20)	1.93	1.78
6. Other (please list) _____											

C. If additional land is acquired in the canyon for public use, the Forest Service should:

1. Purchase as much private land in the canyon as possible	502	43	10	10	16	6	3	12		2.85	2.08
2. Purchase only that land which is necessary to maintain Forest Service facilities and operations	486	26	14	11	21	8	6	14		3.42	2.06
3. Purchase private lands as it comes on the market	498	45	18	11	14	3	2	6		2.44	1.78
4. Acquire land through condemnation	481	11	5	7	22	7	7	42	(1.25)	4.96	2.12
5. Other (please list) _____									(1.26-27)		

III. Do you know what Mayhew Lodge is: N=520
80 No. Please go to Question V
20 Yes. Please go to Question IV
$\bar{x}$=1.20 SD= .4 (1.28)

IV. What do you think should be done with Mayhew Lodge: (check one of the following) (1.29)

N=399
1 Torn down
2 Allowed to wear down
16 Restored and operated at Forest Service expense for public use
4 Restored by the Forest Service, operated by private concessionaire
2 Other (please list) _____

$\bar{x}$= .99
SD=1.69

V. Based on what you observed in the canyon, do you think the current number of law enforcement officers (from U.S. Forest Service, County Sheriff Office, State Police Force, etc.) during the summer use season should be: (1.30)

0	3	27	35	13	3
Decreased considerably	Decreased somewhat	Remain the same	Increased somewhat	Increased considerably	No opinion

$\bar{x}$=3.07 SD=1.70

N=523

VI. If there are any current management actions you would like to see changed, or if you have recommendations for new actions, please list them briefly below: (1.31)

_____

_____

_____

VII. How many total visits did you make to Oak Creek Canyon during the period May 1 to September 30, 1977? _____ (1:32-33) $\bar{x}$ = 4.96
N = 529 SD = 9.09

VIII. Please check each of the activities you engaged in when visiting Oak Creek Canyon last summer.

$\bar{x}$=1.02 SD=.22 N=245	1. 44% Swimming	(1:34)	6. 85% Sightseeing	(1:39)	$\bar{x}$=6	SD= .17	N=475
$\bar{x}$= .03 SD=.21 N=201	2. 36% Sunbathing	(1:35)	7. 79% Auto Driving	(1:40)	$\bar{x}$=7	SD=0	N=440
$\bar{x}$= .03 SD=.22 N=183	3. 32% Camping	(1:36)	8. 52% Hiking	(1:41)	$\bar{x}$=8.01	SD= .10	N=292
$\bar{x}$= .04 SD=.25 N=142	4. 25% Fishing	(1:37)	9. 14% Other (please list)				
$\bar{x}$=5 SD=0 N=300	5. 54% Picnicking	(1:38)			$\bar{x}$=8.87	SD= .81	(1:42-43) N=79

IX. Different types of outdoor recreation opportunities provide users with different types of experience. Managers of Oak Creek Canyon desire to know what adds to or detracts from the level of satisfaction you get from visiting that area. Because preferences differ for different activities, these questions should be answered with only one activity (i.e., camping, swimming, or whatever) in mind. Please think about that one activity which you engaged in most in Oak Creek Canyon. Please list the activity in the blank _____ (1:44)

Imagine that you were to engage in that activity in Oak Creek Canyon next summer (Summer of 1978). Then rate how much you think each of the following types of experience would either add to or detract from the level of satisfaction you would receive from engaging in that activity. If you feel you would not realize a particular experience (listed below) in Oak Creek Canyon, just check the neutral box for the item. Please do not be bothered by the duplication or similarity of some items, as we need all items for greater accuracy.

Activity $\bar{x}$=4.83 SD=2.44	
Swimming	12
Sunbathing	2
Camping	27
Fishing	7
Picnicking	5
Sightseeing	23
Auto Driving	3
Hiking	15
Other	7
N = 469	

		EFFECT ON SATISFACTION											
		ADDS					DETRACTS						
Items for your activity	N	Most Strongly	Strongly	Moderately	Slightly	Neutral	Slightly	Moderately	Strongly	Most Strongly		$\bar{x}$	SD
1. Getting away from the city for awhile													
2. Getting out-of-doors													
3. Being on your own													
4. Practicing skills													
5. Using your equipment	496	16	10	15	12	45	1			2	(1:45)	3.75	1.69
6. Showing others you could do it	491	2	4	4	9	69	3	2	2	6		5.00	1.46
7. Exploring the area	505	34	29	18	10	9	1	-	-			2.34	1.33
8. Physically resting	512	33	24	18	11	12	1	1		-		2.52	1.47
9. Telling others about your trip	509	17	13	16	17	32	1	2	1	1		3.54	1.72
10. Being away from crowds of other people	512	43	20	13	7	13	1	1	1	1	(1:50)	2.43	1.72
11. Doing something with your family	522	45	25	9	3	17		-				2.24	1.53
12. Enjoying the scenery	528	67	26	5	1	1	-		-			1.44	.80
13. Taking risks	498	2	2	4	11	49	5	5	5	17		5.64	1.94
14. Being in control of things that happen	498	13	11	11	11	50	1	1	1	1		3.95	1.67
15. Experiencing the tranquility	514	51	25	13	5	6		-			(1:55)	1.96	1.32
16. Experiencing the temperature-climate of the area	521	40	24	18	7	11	1		-			2.32	1.45
17. Being with your spouse or another member of the family	524	53	24	9	1	14			-	-		2.02	1.42
18. Showing yourself you could do it	502	8	4	7	11	63	1	1	1	3		4.50	1.55
19. Being obligated to no one	502	17	10	8	8	53	1	1	1	2		3.91	1.80
20. Thinking about your personal values		21	16	15	16	30	1	1		1	(1:60)	3.31	1.69
21. Doing things with your companions	511	35	29	16	8	11			-			2.33	1.38
22. Experiencing the excitement there	507	23	20	14	16	23	1	1		1		3.09	1.67
23. Trying to keep physically fit	510	21	19	18	16	25		1				3.10	1.56
24. Meeting other people in the area	513	13	12	17	18	28	5	2	3	2		3.87	1.84
25. Enjoying the scenic beauty	530	70	23	6	1		-	-	-	-	(1:65)	1.39	.67

	Items for Your Activity	N	EFFECT ON SATISFACTION: ADDS TO — Most Strongly	Strongly	Moderately	Slightly	Neither Adds Nor Detracts	DETRACTS FROM — Slightly	Moderately	Strongly	Most Strongly		$\bar{x}$	SD
26.	Teaching your outdoor skills to others	489	4	8	15	17	53	1	1		1		4.19	1.28
27.	Experiencing new and different things	490	21	21	27	17	14	-	-	-			2.84	1.37
28.	Avoiding the unexpected	475	4	4	8	13	58	6	4	2	2		4.68	1.43
29.	Feeling free from society's restrictions	490	24	17	18	12	26	1	1	-	1		3.11	1.68
30.	Thinking about your future	482	12	11	12	19	42	2		-		(1:70)	3.78	1.47
31.	Getting away from other people	489	26	19	19	15	18	1	1	1		(2:1)	2.92	1.64
32.	Being close to nature	493	50	25	17	5	3		-	-	-		1.87	1.08
33.	Experiencing the fast-paced nature of things here	476	7	5	6	9	47	7	7	5	9		5.05	2.00
34.	Being away from the noise back home	495	37	19	15	13	16						2.57	1.57
35.	Sharing your knowledge with others	486	9	8	15	19	46	2	1	1		(2:5)	3.97	1.42
36.	Being with people having similar values	490	19	17	21	16	24	2	1	1			3.22	1.57
37.	Learning more about nature	492	27	24	22	13	13	-					2.64	1.41
38.	Being near considerate people	485	20	20	15	13	27	2	2	1	1		3.29	1.74
39.	Leading other people	480	3	5	7	15	61	4	3	1	1		4.56	1.25
40.	Increasing your knowledge about things in the canyon	493	26	23	27	14	10	1			-	(2:10)	2.63	1.35
41.	Reflecting on personal religious, or other spiritual, values	489	19	9	17	15	36	1			1		3.55	1.70
42.	Feeling good after being physically active	490	29	27	21	12	10	-	-	-			2.49	1.34
43.	Releasing or reducing some built-up tensions	488	31	24	21	11	13				-		2.53	1.41
44.	Experiencing the peace and calm	493	49	25	13	7	5				-		1.96	1.25
45.	Developing your ability and skills	479	14	12	17	18	37	1	1	1	-	(2:15)	3.61	1.52
46.	Observing other people in the area	488	8	8	15	19	30	8	4	4	4		4.37	1.93
47.	Enjoying the sights and sounds of nature	498	46	27	18	7	2			-	-		1.94	1.10
48.	Having a change from everyday life	479	44	31	16	7	3	-	-	-	-		1.93	1.05
49.	Experiencing the open space there	493	45	29	15	7	5	-	-				2.01	1.25
50.	Being with other members of your group	486	28	24	20	10	16	1				(2:20)	2.70	1.54
51.	Gaining an appreciation of nature	488	39	25	19	10	7	-	-	-	-		2.20	1.25
52.	Feeling frightened	464	1	1	2	6	54	10	7	5	15		5.82	1.59
53.	Being near others who could help if you need them	484	10	9	14	19	42	3	1	1	3		4.05	1.65
54.	Getting exercise	492	24	26	24	14	12	-	-				2.66	1.35
55.	Being on your own	485	21	19	17	11	30	1				(2:25)	3.16	1.61
56.	Reflecting on past memories	482	16	15	17	19	32	1	1				3.45	1.56
57.	Doing something creative such as sketching, painting, photography	480	23	15	10	13	37	1					3.35	1.71
58.	Other (please list)_____											(2:28)		

X. Now please go back and look at all the experience items you marked as neutral in the above list, because you did not expect to realize them. Then circle those neutral experience items that you would like to realize if you were to engage in the listed activity in Oak Creek Canyon next summer.

XI. About how many miles was Oak Creek Canyon from your place of residence during the summer of 1977? (2:30)

18	10	21	10	10	20
-50	51-100	101-200	201-400	401-600	+600

XII. Which of the following best describes your visit(s) to Oak Creek Canyon last summer? (2:31)

32 Oak Creek Canyon was the major trip destination and you spent most of your time in the canyon.
17 Oak Creek Canyon was a major trip destination, but you spent considerable time on side trips outside the canyon
41 Oak Creek Canyon was not a major trip destination, and you stopped by on your way to a major destination elsewhere.
10 Other (please list) N=539 $\bar{x}$=2.29 SD=1.02

XIII. Outdoor recreation managers are concerned about the effect of rising gasoline prices on recreation use and opportunity. This is an "iffy" question, but give it your best guess: what would the price of gasoline have had to have been per gallon during the summer of 1977 before you would not have visited Oak Creek Canyon.? N=509 (2:32)

11	28	23	11	7	19	$\bar{x}$=3.35
75¢-85¢	86¢-$1.00	$1.01-1.25	$1.26-1.50	$1.51-2.00	Over $2.00	SD=1.67

XIV. In which age bracket do you fall? N=543 (2:33)

	1	4	20	25	21	13	10	6	$\bar{x}$=5.70
-12	12-15	16-20	21-26	27-35	36-45	46-55	56-65	65+	SD=1.60

XV. Which of the following best describes where your permanent home is located (please check one blank). (2:34)
N=539

16 The central area of a large city of more than 500,000 people
10 The central area of a medium size city of 100,000-500,000 people
25 A suburb of a medium or large city
9 A small city of 50,000 to 100,000 people
26 A town of 5,000 to 50,000 people
6 Village of less than 5,000 people
8 Farm or rural area

$\bar{x}$=4.31
SD=1.80

XVI. Your sex: 32 Female 67 Male N=538 Extra #'s (2:35)

XVII. Which of the following best describes your occupation: (2:36-37)

6 Hourly laborer
5 Clerical
4 Salesman
9 Skilled tradesman
5 Technical
0 Farmer
14 Manager or Administrator
22 Professional
8 Homemaker
9 Student
10 Retired, unemployed, or disabled
8 Other (please list)_____

N=545

THANK YOU FOR YOUR HELP!

APPENDIX G

OAK CREEK CANYON SURVEY*
WINTER 1978

This questionnaire is being used to help the manager of Oak Creek Canyon learn more about the preferences of the users of that area. We appreciate your help, and please ignore the numbers on the right which will be used for data analysis.

I. The managers of Oak Creek Canyon are particularly interested in your views concerning the following possible (but not planned) developments or actions they could take in Oak Creek Canyon. Please indicate how much you favor or oppose each possible development and action.

A. Possible Development	N	No Opinion	Strongly Favor	Moderately Favor	Slightly Favor	Neither Favor Nor Oppose	Slightly Oppose	Moderately Oppose	Strongly Oppose		$\bar{x}$	SD
		PERCENT										
1. Build more hiking trails in the canyon	56	18	37	18	7	7	5	-	7	(1:11)	2.00	1.9
2. Keep campgrounds open longer than presently open	55	20	34	20	11	9	2	-	4		1.78	1.6
3. Provide more information on facilities and activities in the canyon	55	14	45	14	11	4	5	2	4		1.85	1.7
4. Develop a tents only campground in addition to existing campgrounds	55	11	53	9	9	13	-	4	2		1.84	1.6
5. Develop a backpacker campground in addition to existing campgrounds	56	14	48	9	5	20	-	2	2	(1:5)	1.84	1.6
6. Develop a bicyclist campground in addition to the existing campgrounds	56	23	23	11	5	21	2	5	9		2.50	2.3
7. Develop horseback riding trails in the canyon	56	18	21	18	9	7	2	9	16		2.87	2.5
8. Expand the access and parking facilities at Grasshopper Point swimming area	54	20	31	13	6	4	6	9	11		2.50	2.4
9. Close the present hiking trails in the canyon	55	16	-	2	-	4	9	2	67		5.45	2.6

B. Possible Actions Because of the volume of use the canyon receives, the Forest Service is concerned about the water quality of Oak Creek. To maintain the water quality in the canyon, the Forest Service should:	N	No Opinion	Strongly Favor	Moderately Favor	Slightly Favor	Neither Favor Nor Oppose	Slightly Oppose	Moderately Oppose	Strongly Oppose		$\bar{x}$	SD
		PERCENT										
1. Limit swimming to Grasshopper Point and Slide Rock only	53	17	34	9	-	6	7	7	19	(1:10)	2.91	2.7
2. Allow only fishing (no swimming) in the creek	55	7	14	4	5	5	7	13	44		4.78	2.6
3. Reduce the number of campgrounds	54	15	6	6	6	6	7	18	37		4.63	2.6
4. Do not allow swimming in the creek when water quality is low enough to create a health hazard	56	5	75	16	4	-	-	-	-		1.20	.6
5. Strictly enforce the no pets regulation at the swimming areas	54	6	65	9	-	7	4	6	4		1.91	1.8
6. Other (please list) _____										(1:15)		

II. In which age bracket do you fall? *.010

0%	2%	13%	23%	30%	13%	7%	7%	4%
-12	12-15	16-20	21-26	27-35	36-45	46-55	56-65	65+

N = 53
$\bar{x}$ = 5.11
SD = 1.6

(1:16)

III. How many total visits did you make to Oak Creek Canyon during the period May 1 to September 30, 1977? x = 4.72 SD = 8.76 (1:17-18) N = 54

IV. Please check each of the activities you engaged in when visiting Oak Creek Canyon last summer.

		N			N
1. 45%	Swimming (1:19)	25	6. 79%	Sightseeing (1:24)	44
2. 32%	Sunbathing (1:20)	19	7. 64%	Auto Driving (1:25)	36
3. 37%	Camping (1:21)	22	8. 54%	Hiking (1:26)	30
4. 20%	Fishing (1:22)	12	9. 12%	Other (please list) 7	(1:27)
5. 48%	Picnicking (1:23)	28			

Activity	%
Swim	12
Sun	2
Cam	19
Fish	15
Pic.	0
See	31
Drive	4
Hik	12
Other	4

V. Different types of outdoor recreation opportunities provide users with different types of experience. Managers of Oak Creek Canyon desire to know what adds to or detracts from the level of satisfaction you get from visiting that area. Because preferences differ for different activities, these questions should be answered with only one activity (i.e., camping, swimming, or whatever) in mind. Please think about that one activity which you engaged in most in Oak Creek Canyon. Please list the activity in the blank N = 48 x = 4.854 SD = 2.3 (1:28)

Imagine that you were to engage in that activity in Oak Creek Canyon next summer (Summer of 1978). Then rate how much you think each of the following types of experience would either add to or detract from the level of satisfaction you would receive from engaging in that activity. If you feel you would not realize a particular experience (listed below) in Oak Creek Canyon, just check the neutral box for the item. Please do not be bothered by the duplication or similarity of some items, as we need all items for greater accuracy.

			EFFECT ON SATISFACTION										
			ADDS					DETRACTS					
			Most Strongly	Strongly	Moderately	Slightly	Neutral	Slightly	Moderately	Strongly	Most Strongly		
	Items for your activity	N	PERCENT										x̄ SD
1.	Showing yourself you could do it	51	8	6	18	10	57	2	0	0	0	(1:29	4.08 1.
2.	Being on my own	51	18	18	16	10	37	2	0	0	0	(1:30)	3.37 1
3.	Taking risks	50	2	0	12	14	48	8	0	2	14		5.24 1
4.	Using your equipment	50	14	12	10	16	42	0	2	4	0		3.38 1.
5.	Doing something with your family	53	47	28	9	4	9	2	0	0	0		2.06 1.
6.	Doing things with your companions	52	44	27	6	6	17	0	0	0	0		2.25 1.
7.	Meeting other people in the area	51	23	18	10	18	23	2	2	0	4	(1:35	3.37 2.
8.	Increasing your knowledge about things in the canyon	51	33	33	14	8	12	0	0	0	0		2.31 1.
9.	Enjoying the scenery	53	52	34	5	2	2	0	0	0	0		1.6
10.	Thinking about your personal values	49	20	18	22	6	31	0	2	0	0		3.15 1.
11.	Doing something creative such as sketching, painting, photography	51	27	20	10	6	35	2	0	0	0		3.08 1.
12.	Reflecting on past memories	52	15	8	19	17	40	0	0	0	0	(1:40)	3.60 1.
13.	Trying to keep physically fit	53	15	17	13	23	29	0	0	0	0		3.38 1.
14.	Physically resting	53	21	17	26	11	24	0	0	0	0		3.02 1.
15.	Releasing or reducing some built-up tensions	52	25	25	23	6	21	0	0	0	0		2.73 1.
16.	Experiencing the tranquility	52	46	21	19	4	10	0	0	0	0		2.10 1.
17.	Being away from the noise back home	52	48	21	15	6	10	0	0	0	0	1:45)	2.10 1.
18.	Being near considerate people	50	20	24	24	12	18	0	2	0	0		2.92 1.
19.	Experiencing the temperature-climate of the area	52	36	21	19	11	11	0	0	0	0		2.40 1.
20.	Being close to nature	52	54	25	11	8	2	0	0	0	0		1.79 1.
21.	Experiencing the peace and calm	51	53	27	14	4	2	0	0	0	0		1.74 1.
22.	Having a change from everyday life	53	51	26	17	2	4	0	0	0	0	(1:50)	1.81 1.

*** THANK YOU FOR YOUR HELP ***